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ABSTRACT

The updated technology plan for the state of Texas makes requests of the Texas Legislature; states actions to be taken by the Texas Education Agency; and makes recommendations to other entities including other state agencies, regional education service centers, local school districts, institutions of higher education, communities and the private sector. The plan outlines short-term (1996-1998), mid-term (1999-2002), and long-term (2003-2010) initiatives and recommendations. This progress report details the accomplishments and progress made from September 1996 through August 1998. Working together, the various projects and initiatives described in this report meet the recommendations outlined in the Long-Range Plan. This report is organized in sections that reflect the four areas of the plan: Teaching and Learning; Educator Preparation and Development; Administration and Support Services; and Infrastructure for Technology. There are two other sections in the report: Education Service Centers; and Funding Opportunities. Each section includes an Executive Summary that summarizes progress in that particular area of the plan. A section of Appendices contains a glossary; a table listing the 1997 and 1998 Technology Integration in Education (TIE) Grant Awards; listing of districts enrolled in the Texas Library Connection (TLC); and a table showing the current status of technology initiatives. A timeline of events and accomplishments (September 1983 through August 1996) is also provided, at the beginning of the report. (AEF)

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ED 449 792

A Report to the 76th Texas Legislature

from the Texas Education Agency

Progress Report on the Long-Range Plan for Technology, 1996-2010

December 1998

IR020557

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Progress Report on the Long-Range Plan For Technology, 1996 - 2010

A Report to the 76th Texas Legislature

from the Texas Education Agency December 1, 1998

Submitted to the Governor, Lieutenant Governor, Speaker of the House of Representatives, and the members of the Seventy-Sixth Texas Legislature

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TEXAS EDUCATION AGENCY

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MIKE MOSES
COMMISSIONER OF EDUCATION

December 1998

The Honorable George W. Bush, Governor of Texas
The Honorable Bob Bullock, Lieutenant Governor of Texas
The Honorable Pete Laney, Speaker of the House of Representatives
Members of the 76th Texas Legislature

Section 32.001 of the Texas Education Code required the State Board of Education to develop a long-range plan for technology. The *Long-Range Plan for Technology, 1988-2000* was adopted by the Board in November 1988. The measure further mandated that a report be sent biennially to the governor and the legislature on the progress toward implementation of this plan. Since the adoption of the plan in 1988, four progress reports have been submitted. The first progress report outlined the developmental stages of the initiatives called for in the plan. The second progress report documented activities, actions and accomplishments from September 1988 to August 1992. The third progress report detailed activities and actions from September 1992 to August 1994. The fourth progress report highlighted accomplishments from September 1994 to August 1996.

Since 1988, changes in existing technologies and the emergence of new technologies created new and different opportunities for schools. Legislative changes created more control at the local district level, giving districts more opportunities to make decisions regarding technology than ever before. With these legislative changes, and the changes in technology and the public school climate, an update of the 1988 plan was clearly required. In August 1995, the Texas Task Force on Educational Technologies was established to update the *Long-Range Plan for Technology, 1988-2000*. The State Board of Education adopted the *Long-Range Plan for Technology, 1996-2010* and presented it to the Legislature in 1996.

This first progress report on the *Long-Range Plan for Technology, 1996-2010* documents accomplishments and activities from September 1996 to August 1998. Highlighted in this report are the collaborations and progress made by the Texas public schools, regional education service centers, institutions of higher education and the Texas Education Agency toward implementation of the updated plan.

I am pleased to submit the first Progress Report on the *Long-Range Plan for Technology, 1996-2010*.

Respectfully submitted,

Mike Moses
Commissioner of Education

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Timeline of Events and Accomplishments

September 1983 – August 1984

- HB 1304 calls for a long-range plan for technology
- HB 246 mandates a computer literacy course at Grades 7 or 8

September 1984 – August 1985

- Software Advisory Committee (SAC) established

September 1988 – August 1989

- The *Long-Range Plan for Technology, 1988-2000* adopted by the SBOE

September 1989 – August 1990

- SB 650 authorizes statewide initiatives defined by the *Long-Range Plan for Technology, 1988-2000*
- SB 1 establishes the Technology Allotment
- Technology Preview and Training Centers established at Education Service Centers (ESCs)
- Textbook adoption process amended to include electronic media
- First Technology Demonstration Sites established
- Advisory Committee on Technology Standards (ACTS) established by the SBOE
- Texas Center for Educational Technology (TCET) established at the University of North Texas
- Integrated Telecommunications Feasibility Study completed

September 1990 – August 1991

- First electronic textbook adopted by the SBOE
- Textbook Proclamation 68 calls for only electronic textbooks to be submitted for computer literacy
- Texas School Telecommunications Access Resource (T-STAR) established
- First 250 T-STAR satellite dishes installed in schools and ESCs and training provided
- Texas Education Network (TENET) established
- TENET Master Trainers Program established
- SAC recommends use of *The Educational Software Selector (TESS)*

September 1991 – August 1992

- SB 351 includes technology funds in Foundation School Program
- Districts required to submit five-year technology plans to TEA and DIR
- Technology Allotment Funds flow to districts
- 86 additional T-STAR satellite dishes installed in schools and training provided
- Technology funds support ESC Technology Preview Centers and Training Programs

Timeline of Events and Accomplishments *(continued)*

September 1992 – August 1993

- SB 7 includes technology planning in campus and district improvement plans
- SAC and ACTS combined to form Educational Technology Advisory Committee (ETAC)
- SB 5, Rider 61, calls for development of a statewide database of public school library holdings
- HB 183 and HB 1029 call for establishment of technology demonstration sites - Projects for Educational Technology (PETs)
- First 8 Centers for Professional Development and Technology (CPDTs) established

September 1993 – August 1994

- 22 planning grants awarded to 77 districts and their collaborators under PETs
- 138 T-STAR grants for satellite dishes awarded to schools
- T-STAR Information and Training Center established
- 6 new CPDTs established

September 1994 – August 1995

- TENET Connectivity Grants awarded to 55 school districts
- Creating Connections Consortium designated as a PETs demonstration site
- Texas Library Connection (TLC) established with 30 charter districts
- 531 additional T-STAR grants for satellite dishes awarded to school districts
- Texas Education Telecommunications Network (TETN) implemented
- TCET received $3.5 million in assets from Supercollider project
- TLC selected 100 campuses to test the effective use of full-text databases
- ETAC members charged with writing curriculum guidelines for Technology Applications essential knowledge and skills

September 1995 – August 1996

- 16 Planning grants and 5 implementation grants awarded under PETs
- 125 districts added to the Texas Library Connection Union Catalog
- TETN electronic data transfer project begins
- 49 additional T-STAR grants for satellite dishes bring the total number of sites to 1,054
- T-STAR Studio B established to provide a two-way videoconferencing facility
- TENET project moved to Charles A. Dana Center at the University of Texas at Austin
- 7 additional CPDTs established, bringing the total number to 21
- Texas Education Agency called for first update to computer literacy adoption
- Technology Allotment moved to Textbook Fund
- Computing proficiency credit required for graduation as part of Recommended High School Plan
- Technology Applications curricular area becomes part of required curriculum
- One credit of Technology Applications required under all graduation plans
- Texas Task Force on Educational Technologies established to update the *Long-Range Plan for Technology, 1988-2000*

Timeline of Events and Accomplishments *(continued)*

September 1996 – August 1997

- The *Long-Range Plan for Technology, 1996-2010* adopted by SBOE
- Commissioner's Public Access Initiative established to implement the *Long-Range Plan for Technology, 1996-2010*
- Texas Education Agency website established to provide educators, legislators and community members with immediate access to education data and services
- Installation phase of T-STAR satellite dishes completed
- 219 districts, representing 731 campus libraries, sent records to be merged into the TLC Union Database
- TEA receives IBM Reinventing Education 2 grant to develop statewide data warehouse
- T-STAR Studio B videoconferencing facility integrated into T-STAR Network broadcast capability
- 1995 PETs project, Creating Connections, receives National Council of Chief State School Officers award for innovative use of technology in education
- Texas Essential Knowledge and Skills adopted for Technology Applications
- Premiere edition of quarterly newsletter, *T-STAR Programming News* published to highlight TEA programming broadcast over the T-STAR Network
- Technology Integration in Education (TIE) grant program awarded $15.5 million to 19 local education agencies, impacting 195 districts
- Request for Statement of Interest brought 129 additional districts, representing 652 campus libraries, into TLC; records merged into the TLC Union Database
- Interagency Cooperation Agreement between GSC and TEA signed to provide Internet access to Texas educators through contract between GSC and Southwestern Bell Internet Services
- The *Promising Practices* professional development series, produced by TEA and Affiliate programming partners, received award from the National Educational Television Association
- SB 294 requires TEA to develop a study project to determine costs and benefits of using computer networks, including the Internet, in public schools
- First T-STAR distance learning conference held
- First statewide T-STAR User Group established
- Evaluation of the TLC full-text pilot project conducted and a report submitted to TEA
- T-STAR website established
- Texas Essential Knowledge and Skills (TEKS) for English language arts and reading, mathematics, science, social studies, health education, physical education, economics, Spanish language arts and English as a second language adopted by SBOE for implementation beginning September 1998
- Contracts negotiated between TLC project and *Britannica Online, Austin American Statesman,* UMI's *ProQuest Direct* and Auto-Graphics for the 1997-1998 school year
- Acquisition of digital equipment for conversion of T-STAR Network broadcast facility from analog to digital begins

Timeline of Events and Accomplishments *(continued)*

September 1997 – August 1998

- New criteria for participation in TLC established, based on results of evaluation of the full-text pilot project. Process changed from Request for Statement of Interest to open enrollment
- 6 grants for creation of technology staff development models awarded under PETs
- Sharing Technology Applications Resources with Teachers (START) kit to assist educators in the implementation of the Technology Application curriculum is funded by TEA and developed by TCET for Texas educators
- Application process for participation in Universal Service Fund Education Rate (E-Rate) program established
- Over 750 technology plans certified for Texas schools participating in E-Rate program
- Professional development programs about Technology Applications TEKS, the integration of technology across the curriculum, START, TLC, TIE, and PETs are broadcast by TEA over the T-STAR Network
- 1995 PETs project, Creating Connections, receives the first annual Logotech Award from the Comptroller of Texas for community cost savings
- TIE grant program awards $33.3 million to 38 local education agencies, impacting 500+ entities
- Fiber connection installed from T-STAR Network broadcast facility to satellite uplink provider
- Financial support of TENET phased out
- T-STAR Information and Training Center contracts with TCET to conduct a research study of Texas districts to identify attributes of successful satellite-delivered, for-credit distance learning programs
- Texas Library Connection website established
- First live broadcast from the Commissioner's Midwinter Conference on Education distributed by TEA over the T-STAR Network
- Special issue of *T-STAR Magazine* offering information about distance learning courses and providers and highlighting results of research study conducted by TCET on for-credit distance learning, is distributed to Texas schools
- *T-STAR Survival Kit* with print and video resources is disseminated to T-STAR sites and statewide T-STAR User Group members
- Open enrollment brings 200 additional districts, representing 674 campus libraries, into the TLC, bringing total enrollment to approximately 3,000 campuses
- Format is selected for future digital broadcast of T-STAR Network
- Second annual T-STAR distance learning conference held
- Grant of $10.1 million received from Telecommunications Infrastructure Fund Board to assist in development of the Public Education Data Warehouse and Central Network ATM upgrade
- Upgrade to TETN system completed, paving the way to take advantage of ATM technology

Executive Summary

Texas has been a leader in the use of technology in education for more than a decade. Texas continues its leadership with a comprehensive vision for education as outlined in the *Long-Range Plan for Technology, 1996-2010*. In accordance with legislation passed in 1985, the State Board of Education developed and adopted the *Long-Range Plan for Technology, 1988-2000* which served as a blueprint for providing students and teachers with tools to gain the knowledge and skills required for teaching, learning and working in the 21st century. This plan established technology as an essential priority in achieving equitable access to information and resources for all Texas schools. Since that time, four progress reports outlining the accomplishments toward the implementation of the plan have been written.

With developments in technology, changes in state and federal legislation, increased expectations by business and industry, and changes in the public education system, it became necessary to update the Long-Range Plan. In 1995, the Commissioner of Education appointed the Texas Task Force on Educational Technologies to re-examine the original plan. As a result, the *Long-Range Plan for Technology, 1996-2010* was adopted by the State Board of Education and presented to the Legislature in 1996. In order to achieve the vision of equitable access to information and resources through the infusion of technology into education, the *Long-Range Plan for Technology, 1996-2010* makes requests of the Texas Legislature; states actions to be taken by the Texas Education Agency; and makes recommendations to other entities including other state agencies, regional education service centers, local school districts, institutions of higher education, communities and the private sector.

The updated plan focuses on four areas:

- Teaching and Learning
- Educator Preparation and Development
- Administration and Support Services
- Infrastructure for Technology

These areas are dependent on one another and work in concert to create a technology-rich environment for the benefit of all users.

The *Long-Range Plan for Technology, 1996-2010* outlines short-term (1996-1998), mid-term (1999-2002), and long-term (2003-2010) initiatives and recommendations. This report details the accomplishments and progress made from September 1996 through August 1998 towards achieving the goals of the Long-Range Plan. Working together, the various projects and initiatives described in this report meet the recommendations outlined in the Long-Range Plan. This report is organized to reflect the four areas of the plan.

Significant progress has been made to achieve the goals outlined in the *Long-Range Plan for Technology, 1996-2010*. The statewide curriculum adopted by the State Board of Education, the Texas Essential Knowledge and Skills (TEKS), clearly identifies what students must know and be able to do. The TEKS call for the use of technology as a tool for teaching and learning in each content area and make technology the focus of the Technology Applications TEKS. Changes evident in schools include the use of technology beginning in earlier grades; web-enabled newspapers and video yearbooks; campus and district websites; and student webmasters, network troubleshooters, and computer repair technicians. Multimedia book reports and science fair projects; research projects based on complex searches of digital information databases; virtual field trips; and simulated chemistry experiments are examples of technology applications that engage students and promote critical thinking and problem-solving. Computer-generated report cards, electronic lesson plans, Internet resources and e-mail assist teachers and administrators as they become familiar with telecommunications services, network designs, electrical requirements and technology-related professional development needs.

Providers of instructional products and services have demonstrated interest in working with Texas schools at the state, regional, and local levels. Enhanced cost efficiencies are gained through collaborative purchasing power. Changes in the textbook adoption process encourage the submission of

electronic textbooks for use in Texas classrooms and online resources provided by the Agency facilitate the purchasing and record keeping for all textbooks. Senate Bill 294, passed in 1997, established the Computer Network Study Project to determine the costs and benefits of using computer networks, including the Internet, in public schools. An advisory committee was appointed to assist the Agency in the study project. A subcommittee is investigating the feasibility and cost-effectiveness of developing electronic textbooks that may be used by students who are visually impaired or have other disabilities.

Educators are increasingly aware of the need for professional development to ensure that they know how to use technology effectively in the teaching and learning process. Districts, statewide curriculum centers, higher education, professional organizations and businesses are providing technology workshops, site-based facilitators, online mentors, and distance learning to assist teachers in the integration of technology into the curriculum. Education service centers provide a wide array of services to assist districts in their implementation of technology. In addition, legislation authorized the creation of Technology Preview Centers and Training Programs at all 20 education service centers throughout the state to provide school districts with educational technology services that enhance efficiency, effectiveness and the performance of students, teachers and administrators. Education service centers provide planning, consultation, professional development and technical assistance in response to district needs and in support of the *Long-Range Plan for Technology, 1996-2010.*

Technical support services and administrative applications of technology are also on the rise. Administration and support services staff in school districts require sophisticated technological tools to accomplish their functions. Many business applications essential to the operation of schools are now available over the Agency's website. TEA Answers Online is a web-based forum that enables districts and education service centers to get answers to questions pertaining to district and ESC financial management. The entire *Accounting Resource Guide* is also provided to the public, online, so they can see the financial rules school districts are required to follow. Reimbursements for the federal Child Nutrition Programs are handled electronically. Districts are also using a variety of technology tools to examine student performance data so that more effective teaching strategies can be utilized. It is imperative that administrative and support staff have access to both the tools and the professional development needed to learn how to effectively and efficiently use these tools.

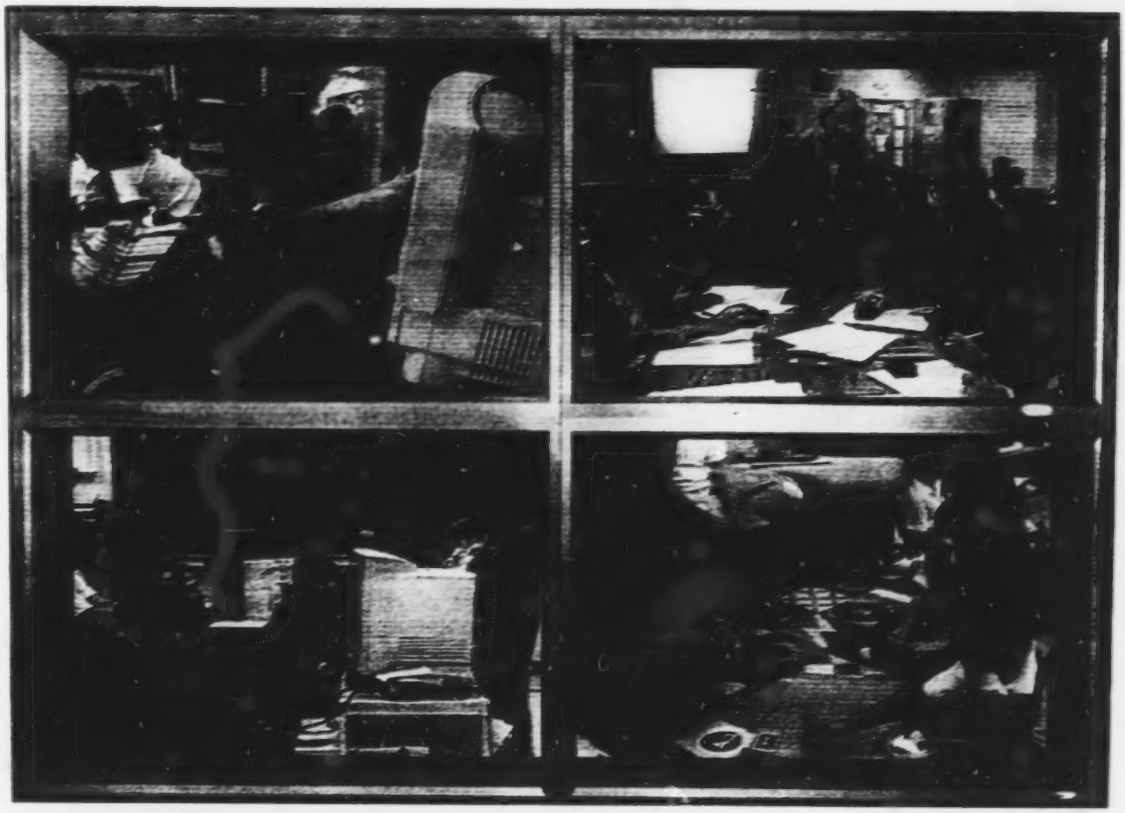
Texas has recognized the need for a comprehensive state technology system with voice, video and data capabilities. Through the leadership of the Telecommunications Planning Group, a partnership has been forged between the General Services Commission, the Telecommunications Infrastructure Fund Board, and the Texas Education Agency to further develop the statewide telecommunications system, TEX-AN 2000, to meet the changing needs of all stakeholders. The General Services Commission has begun the process by contracting with telecommunications engineering consultants to guide the development of this statewide infrastructure using $12.5 million from existing funds and $12.5 million from a grant from the Telecommunications Infrastructure Fund. The regional networks being created by the education service centers are also a key element in the development of the statewide, integrated telecommunications system.

As districts expand their technological capabilities, some are nearing the goal of having a workstation for every educator and one workstation for every three students. Districts are using local, state and federal funds, including the Technology Allotment; grants from a variety of sources, such as the Telecommunications Infrastructure Fund and the Technology Literacy Challenge Fund; and community partnerships. However, the requests for grant funds far exceed the amounts available. Many districts are still struggling to find sufficient resources to provide workstations and the software and support required to use them effectively. Schools continue to need ongoing financial support to ensure the development and sustainability of their technology programs.

Access to the Internet is on the rise. More than 90% of districts and 60% of campuses are directly connected to the Internet and more than 65% of campuses have local area networks. Professional development is provided through a variety of avenues for teachers and administrators. The number of districts with technology coordinators, network specialists, campus facilitators, and teachers and librarians trained in technology continues to grow. In addition to developing computer and Internet capabilities, districts are also working to establish videoconferencing networks, primarily through grants.

When all Texas students, parents, teachers, superintendents, legislators and business leaders have immediate access, through technology, to the tools, products and information that are needed to make decisions, to educate, to plan, and to learn, we will have achieved our vision.

Teaching and Learning



Texas children must become trilingual in the 21st century. They will need to be proficient not only in English and a second language but in computer literacy as well.

Mike Moses
Commissioner of Education

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The Vision

Imagine a school...

...where every student—regardless of zip code, economic level, age, race or ethnicity, or ability or disability—can be immersed in the sights, sounds, and languages of other countries; visit museums; research knowledge webs from the holdings of dispersed libraries; and explore the inner workings of cells from inside the cell or the cold distance of outer space from inside a virtual spacesuit.

The Reality

Tonya Canada is a Technology Educator in the Snyder Independent School District. She taught kindergarten at Stanfield Elementary School for eight years, then eighth grade computer literacy. In 1997, she became a district technology educator. Her kindergarten class' web pages won one of eight national awards in the Microsoft Schools on the Web program. Mrs. Canada's kindergarten class' website included stories written and illustrated by the children. The website can be accessed at: http://www.esc14.net or http://www.gsh.org/schools/usa/tx/se2839.

Executive Summary

Technology has transformed many sectors of our society such as medicine, finance, transportation, communication and manufacturing. When properly designed and implemented, technology can also transform education and improve teaching and learning. As evidenced by the rapid growth of computing and telecommunications in our schools, Texas is moving forward towards the vision outlined in the *Long-Range Plan for Technology, 1996-2010.*

To ensure that our students are prepared to live and work in the global, knowledge-based economy of the 21st century, the Texas Essential Knowledge and Skills (TEKS) were adopted by the State Board of Education and made effective September 1, 1998. The TEKS include the use of computers and related technology in all curriculum areas. In addition, TEKS were adopted for Technology Applications to provide guidelines for what K-12 students should know and be able to do with computers and related technology.

As technology makes vast amounts of information available, students and educators alike must develop the skills to search, retrieve, evaluate and use that information effectively. Multimedia offers opportunities to teach critical thinking and communication skills. Through virtual learning environments and simulations, technology can provide content and context for learning not possible through traditional means. Access to digital online databases enables integration of technology into all curriculum areas. Through telecommunications, the traditional classroom and library are expanded to provide information and resources from around the world.

To assist educators with the implementation of the TEKS, statewide Curriculum Centers provide resources and ongoing education and professional development. Many of the products and services of the Centers include strategies for the use of technology and are delivered in a variety of electronic formats. For the latest information on curriculum and resources, visit the Texas Education Agency website at http://www.tea.state.tx.us/resources.

Many needs of Texas students are met through distance learning and other technologies. The Texas School Telecommunications Access Resource (T-STAR) is a one-way video/two-way audio, satellite communications system capable of delivering distance learning programming, teleconferences, professional development, training and instructional television directly to students, teachers and administrators in school districts and at education service centers throughout Texas. Teachers use T-STAR to provide for-credit courses, curriculum enhancement programs and electronic field trips, and professional development.

Use of the Internet has increased to provide students and teachers with access to information through various websites, electronic databases, virtual libraries, online mentors and interaction with others around the globe. Two-way videoconferencing allows districts to offer for-credit high school courses as well as college level coursework and professional development through collaboration with institutions of higher education. Technology provides a window to the world that is a critical component for preparing our teachers and learners to live and work in the 21st century.

As districts continue the ongoing planning and implementation of technology, identification and sharing of effective practices is critical. Through a variety of statewide efforts, models of effective practice are shared throughout the state via websites, CD-ROM, video and print materials. These efforts include the Texas Mentor School Network, the Texas Library Connection, Projects for Educational Technology, Technology Integration in Education projects funded through the Technology Literacy Challenge Fund, Centers for Educator Development and the Texas Center for Educational Technology. The Texas Education Agency is developing a "best practices" data warehouse to enhance access to these and other examples of successful practices.

Planning for the implementation and integration of technology to achieve campus and district goals is an ongoing process. All major funding opportunities are based on quality technology planning. Assistance in developing and revising technology plans is available from a variety of sources. While all areas of technology planning are important, there is an increased emphasis on aligning technology goals with learning goals. Integration of technology into the curriculum presents both opportunities and challenges for educators across the state.

Curriculum and Instruction

Texas Essential Knowledge and Skills Development and Adoption

Technology is not the icing on the cake, it is the flour in the mix. It is a part of curriculum that improves instruction.

Sharon Clark, curriculum coordinator
Waller ISD

The Texas Essential Knowledge and Skills (TEKS), which became effective September 1, 1998, constitute the first major rewrite of the curriculum since the adoption of the Essential Elements in 1984. They set high standards for the content and skills that students must know and be able to do. A significant difference between the Texas Essential Knowledge and Skills and the Essential Elements is the addition of technology as part of each content area. Specific knowledge and skills were developed focusing on the use of computers and related technology.

As a part of Senate Bill 1 passed in 1995, the Texas Legislature directed the State Board of Education to establish required curriculum for kindergarten through Grade 12 (K-12). This curriculum is made up of a foundation curriculum including: English language arts and reading; mathematics; science; and social studies, consisting of Texas, United States and world history, government and geography; and an enrichment curriculum including, to the extent possible: languages other than English; health; physical education; fine arts; economics, with emphasis on the free enterprise system and its benefits; Career and Technology Education; and Technology Applications.

The statute directed the State Board of Education, with the direct participation of educators, parents, business and industry representatives and employers, to identify the essential knowledge and skills of each subject of the foundation and enrichment curricula that all students should know and be able to do. The Texas Essential Knowledge and Skills have been developed, adopted and are now in effect in Texas schools. School districts are required to use the essential knowledge and skills established for the foundation curriculum in their instructional programs, but may use the essential knowledge and skills for the enrichment curriculum as guidelines for providing instruction. For the first time, technology also was to be included in the essential knowledge and skills across the curriculum. With the adoption of the TEKS, the foundation was laid and the impetus provided for the infusion of technology into all curricular areas at K-12 grade levels in a structured, organized and systematic manner. This in turn enhances the need for technology planning and technology staff development for all educators.

It seems so simple to incorporate technology, but it takes planning and implementation of these plans.

Barbara Stagner, principal
Milliken Middle School

Texas Essential Knowledge and Skills For Technology Applications

Student Technology Proficiencies

In addition to technology connections in subject areas, TEKS were developed in Technology Applications specifying student proficiencies for grades kindergarten through 12 as called for in the *Long-Range Plan for Technology, 1996-2010*. Chapter 32 of the Texas Education Code calls for standards to ensure that all high school graduates are computer literate by the year 2000. The Technology Applications TEKS include those standards. This is the first time in Texas history that there is a comprehensive K-12 curriculum that focuses on the knowledge and skills students need to have in using computers and other related technology.

The Technology Applications TEKS expand on the previous keyboarding recommendations at the elementary level, computer literacy requirements at the middle school level and computer science and other courses at the high school level. The curriculum is built on the premise that students acquire Technology Applications skills in a continuum beginning at the elementary level and continuing through Grade 12. The Technology Applications curriculum focuses on creating, accessing, manipulating, utilizing, communicating and publishing information during the learning process. The goal of the Technology Applications TEKS is for students to apply these knowledge and skills in all curriculum areas, at all grade levels.

The Technology Applications TEKS were written to provide rigorous standards as well as flexibility for schools. They were written with the premise that the specific time or grade level at which each student develops understanding, knowledge and skills in using technology is dependent on many factors that are determined by conditions of learning readiness, staff readiness and local access to technology. School districts across the state are at varying stages of technology implementation. Considering these factors, the Technology Applications TEKS are organized by benchmarks rather than by grade levels. Students should demonstrate proficiency with the TEKS before they exit target Grades 2, 5 and 8. Interim grade level expectations are based on local definitions and strategies that build toward student success. At the high school level, there are opportunities for in-depth study of technology offered through a variety of courses.

Elementary Level
Prior to the adoption of the Technology Applications TEKS in April 1997, there were no Essential Elements for technology use at the elementary level. The only state guidelines to assist students in the implementation of technology were recommendations regarding keyboarding. Now the Technology Applications TEKS can better serve this purpose.

Highlights of the Technology Applications TEKS for Grades K-2 include:

- At the elementary level for Grades K-2, students have an opportunity to use computers and gain basic Technology Applications foundations and skills such as inputting information, beginning touch keyboarding and becoming familiar with the computer. Using technology, students access information that can include text, audio, video and graphics. They may use computers and related technology to make presentations and prepare projects in content areas.

Highlights of the Technology Applications TEKS for Grades 3-5 include:

- At the Grades 3-5 level, students build on their Grades K-2 knowledge and skills. Students use proper keyboarding techniques and acquire information by selecting the most appropriate search strategies. They use software programs with audio, video and graphics to enhance learning experiences. They solve problems using word processing, graphics, databases, spreadsheets, simulations, multimedia and telecommunications. They communicate information in various formats and to a variety of audiences and evaluate their results.

Middle School Level
In the past, computer literacy was a required course in Grades 7 or 8. Changes in the Texas Administrative Code in 1996 gave districts the flexibility to offer computer literacy Essential Elements in a variety of settings, including a specific class, or through integration into the curriculum, or a combination of both. Now the Technology Applications TEKS give districts expanded flexibility to provide students with opportunities to learn with technology. With the TEKS at Grades 6-8, the students build on the Grades 3-5 knowledge and skills.

Highlights of the Technology Applications TEKS for Grades 6-8 include:

- Students demonstrate keyboarding proficiency in technique and posture while building speed. They acquire information in a variety of ways. They expand their word processing, database, spreadsheet, multimedia, desktop publishing, graphics and telecommunications skills and apply them in curriculum projects. They communicate in a variety of formats and evaluate their results.
- By the end of 8th Grade, a benchmark year, students should know and be able to demonstrate the knowledge and skills listed for the middle school level. Students should be computer literate before entering high school and enrolling in more advanced technology courses. A prerequisite for high school Technology Applications courses is proficiency in the middle school Technology Applications knowledge and skills.

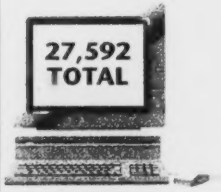
High School Level
At the high school level as well as the elementary and middle, it is important that students be given opportunities to apply technology knowledge and skills in the foundation curriculum as well as enrichment areas. In addition, there are high school courses in both Technology Applications and Career and Technology Education that give students opportunities for continued development of advanced technology knowledge and skills.

In contrast, the ten Essential Elements courses that counted for the graduation credit, known in the past as computer science, computing proficiency and/or computing, were not required for all students.

Beginning with freshmen in 1997-1998, all high school graduates must have one Technology Applications graduation credit under all graduation plans. In September 1997, the State Board of Education adopted amendments to curriculum requirements contained in the Texas Education Code, to include all the newly adopted Technology Applications courses developed with the TEKS for graduation credit. The one-credit Technology Applications courses include:

- Computer Science I and II
- Desktop Publishing
- Digital Graphics/Animation
- Multimedia
- Video Technology
- Web Mastering
- Independent Study in Technology Applications

STUDENTS ENROLLED IN TECHNOLOGY APPLICATIONS COURSES 1997-98



- 26,408 Computer Science I & II
- 476 Multimedia
- 228 Webmastering
- 307 Desktop Publishing
- 36 Digital Graphics/Animation
- 98 Video Technology
- 39 Independent Study in Technology Applications

Plus an additional:

- 585 Students taking Experimental Courses

Source:
Course Enrollment PEIMS Data

In addition, several courses in Career and Technology Education were included on the list. The Career and Technology Education courses are in the areas of Business Education and Technology Education/ Industrial Technology. The Business Education courses include:

- Business Computer Information Systems I and II
- Business Computer Programming
- Telecommunications and Networking
- Business Image Management and Multimedia

The courses in Technology Education/Industrial Technology that now count for Technology Applications graduation credit include:

- Computer Applications
- Technology Systems (modular computer laboratory-based)
- Communication Graphics (modular computer laboratory-based)
- Computer Multimedia and Animation Technology.

Highlights of Technology Applications Courses for Grades 9-12 include:

- High school students have a variety of options in the recently adopted courses that allow for growth, specialization, integration of technology into other curriculum areas and preparation for the technological world. Technology changes rapidly and the TEKS have been developed to address current and emerging technologies. The TEKS courses represent a more advanced level and are more rigorous than other technology-related knowledge and skills taught at previous grades.

There are numerous references to the use of computers and other technologies in the foundation curriculum areas of English language arts and reading, mathematics, science, and social studies, as well as in the enrichment areas. As writing teams developed the TEKS in each of the required curriculum areas, they kept in mind the requirement that technology be used as a tool in all areas.

The new statewide curriculum recognizes technology as a valuable teaching and learning tool. The TEKS contain many explicit and implicit references to the use of computers and other related electronic tools. The TEKS calls for students to be proficient with the Technology Applications knowledge and skills so that they may be applied in each of the foundation and enrichment curriculum areas for Grades K-12. It is important that the Technology Applications TEKS are connected with learning in other areas and not seen as isolated knowledge and skills. The Technology Applications TEKS are divided into strands that fall naturally into each of the curriculum areas. The strands include: Foundations, Information Acquisition, Solving Problems, and Communication. Their descriptions follow:

Foundations:

Through the study of Technology Applications foundations, including technology-related terms, concepts, and data input strategies, students learn to make informed decisions about technologies and their applications.

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Information Acquisition:

The efficient acquisition of information includes the identification of task requirements; the plan for using search strategies; and the use of technology to access, analyze, and evaluate the acquired information.

Solving Problems:

By using technology as a tool that supports the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create a solution, and evaluate the results.

Communications:

Students communicate information in different formats and to diverse audiences. A variety of technologies will be used. Students will analyze and evaluate the results.

Throughout the implementation of the TEKS and in the many professional development opportunities and products made available to Texas schools, connections are made between Technology Applications TEKS and other curriculum areas.

Thanks to the State Board and the approval of the new curriculum, we no longer have to teach an isolated course in computer literacy. We can integrate without waivers and without jumping through hoops. We can integrate technology across the curriculum and make it part of the curriculum and make it come alive as an instructional tool.

Bob Brundrett, coordinator
Middle School Mentors
Statewide Initiatives Division, ESC XIII

Educational Technology Advisory Committee

The Educational Technology Advisory Committee (ETAC) was approved by the State Board of Education in September 1993. This 17-member committee is composed of teachers, district technology coordinators, an education service center representative, a higher education professor, independent technology consultants, parents and industry representatives. The Educational Technology Advisory Committee was established to:

- recommend guidelines or standards for the quality, technical specifications, functions, security and other features of hardware, software, staff development and other technology related products and services provided to school districts; and
- cooperate with designers and publishers of computer hardware and software in developing and making available technology products suited for instructional and administrative purposes.

The Educational Technology Advisory Committee developed the following vision to guide their work:

- All students in Texas schools will successfully utilize information and communication technologies in order to continue to learn and contribute as global citizens now and in the 21st century.

In 1995, the Educational Technology Advisory Committee was charged by the Commissioner of Education to serve as the writing team to clarify essential knowledge and skills for the Technology Applications content area. In addition, some writing team members also served on writing teams for other content areas and served as technology consultants for the various writing teams. Prior to its assignment to develop the Technology Applications TEKS, the committee focused its work on the development of technology competencies for students, teachers and administrators. Members gathered and analyzed curriculum documents and assessment instruments from districts across Texas and from other states to assist in their work to establish standards/guidelines.

Once the responsibilities of writing the Technology Applications TEKS were completed, the committee recommended that technology competencies for students should apply equally to teachers. The following recommendation was made to the State Board for Educator Certification:

- All educators, both teachers and administrators, should have proficiency in the Technology Applications TEKS, Grades 6-8.

Additional recommendations were developed and provided to the State Board for Educator Certification regarding certification for Technology Applications. Computer Science teachers must hold a Computer

Information Systems (CIS) certificate. However, for the new courses in Technology Applications such as webmastering, the teacher must hold a secondary certificate and the district must ensure that the teacher has the necessary knowledge and skills to teach the course(s).

Several members of the Educational Technology Advisory Committee have been appointed to other committees. Members serve on the State Board for Educator Certification (SBEC) committee that is developing the new license requirements and certification structure for Texas educators and on the Computer Network Study Committee that is studying the feasibility of using computer networks, including the Internet, for textbook updates.

The Educational Technology Advisory Committee will continue to work with the Texas Education Agency in the implementation of the *Long-Range Plan for Technology, 1996-2010.*

Educator Proficiencies

The State Board for Educator Certification (SBEC) mission is to ensure the highest level of educator preparation and practice to achieve student excellence. To accomplish this, the Board proposes to design a system for educator preparation and certification that assures the public that only fully certified educators are employed in public school positions for which certification is a requirement. SBEC was established by the 74th Texas Legislature in 1995 and is currently developing a new certificate structure for all educators.

SBEC has adopted educator proficiencies that are found in the publication *Learner-Centered Schools for Texas: A Vision of Texas Educators.* Teacher proficiencies specifically addressing the use of technology are addressed below:

Learner-Centered Knowledge

- The teacher possesses and draws on a rich knowledge base of content, pedagogy and technology to provide relevant and meaningful learning experiences for all students.
- The teacher stays abreast of current knowledge and practice within the content area, related disciplines and technology; participates in professional development activities; and collaborates with other professionals.
- To further develop multiple perspectives, the teacher integrates other disciplines, learners' interests and technological resources so that learners consider the central themes of the subject matter from as many different cultural and intellectual viewpoints as possible.

Learner-Centered Instruction

- To create a learner-centered community, the teacher collaboratively identifies needs; and plans, implements and assesses instruction using technology and other resources.
- The teacher selects materials, technology, activities and space that are developmentally appropriate and designed to engage interest in learning.

Learner-Centered Communication

- While acting as an advocate for all students and the school, the teacher demonstrates effective professional and interpersonal skills.
- The teacher uses verbal, nonverbal and media techniques so that students explore ideas collaboratively, pose questions and support one another in their learning. The teacher and students listen, speak, read and write in a variety of contexts; give multimedia and artistic presentations; and use technology as a resource for building communication skills.

Learner-Centered Professional Development

- The teacher, as a reflective practitioner dedicated to all students' success, demonstrates a commitment to learn, to improve the profession and to maintain professional ethics and personal integrity.
- The teacher uses technological and other resources to facilitate continual professional growth.

With a focus on learner-centered instruction, SBEC is in the process of establishing certification standards for technology proficiencies for all educators in teaching and learning, instructional management, professional development and administration. These proficiencies will be needed for a license necessary to teach students. Certification standards are based on the educator's understanding and practice related to a core of pedagogical knowledge and skills in areas including technology, responding to diverse

groups of learners, professional and interpersonal communication skills, professional ethics and personal integrity, discipline management and the teaching of reading. Competencies will be verified by SBEC through appropriate assessments.

As SBEC develops frameworks in alignment with the new required curriculum, they have addressed issues regarding certification. The State Board for Educator Certification and the Texas Education Agency are working together to help administrators identify technology-proficient educators as they provide for the integration of technology into all curriculum areas and prepare our students for success in our technology-driven society.

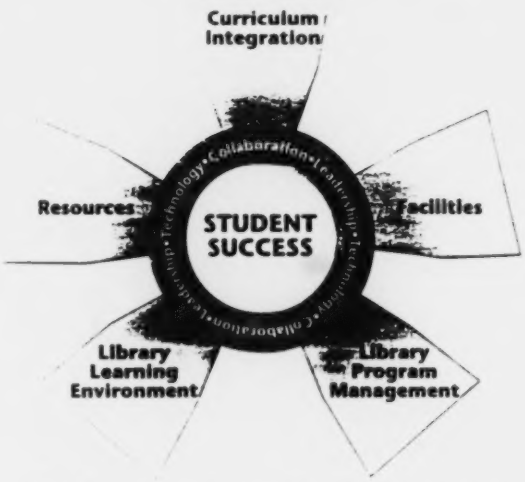
An advisory committee on educator certification made final recommendations for an all-level Technology Applications area of licensure to SBEC in August 1998. Final certificate structure recommendations will be presented to the SBEC Board in January 1999, with a credential established that recognizes specialization in instructional technology. This will accomplish the recommendation in the *Long-Range Plan for Technology, 1996-2010* to establish an instructional technology credential. Additional information is available at http://www.sbec.state.tx.us.

Library Standards

The Texas State Library, as required by law, developed and adopted new library standards in consultation with the State Board of Education. The new standards for school library programs emphasize the role of the school library program in integrating technology into teaching and learning in all curriculum areas. In fact, the over-arching mission of the school library program is to ensure that students and staff are effective users of ideas and information enabling them to be literate, life-long learners.

The new standards serve as guides to developers of school library programs. The goal is to create effective users of information by providing instruction to foster competence in acquiring, using and evaluating information and ideas. This, according to the standards, is accomplished by implementing programs that effectively address the five components of the school library program: the library learning environment, curriculum integration, resources, library program management and facilities.

SCHOOL LIBRARY
PROGRAM COMPONENTS



The library standards establish three levels of school library programs: exemplary, recognized and acceptable. A model school library program contains the following elements in each of the component areas that are specific to the integration of technology in teaching and learning:

The library learning environment in a model school library program:

- is an integral part of the school curriculum
- offers flexible, open-access to resources at the time of need
- provides an active stimulating atmosphere for information users

Curriculum integration in a model school library program:

- provides relevant, meaningful instruction based on multiple resources
- applies information problem-solving to curriculum-related learning objectives
- encourages and provides opportunities for collaborative planning and teaching by librarians and teachers
- stimulates students to be active and independent learners
- offers education, training and guidance to students and staff in the use of information technology resources

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- encourages the production of appropriate products, including multimedia presentations
- works with individuals and groups as determined by student need

Resources in the model school library program:

- offer a balance of print, multimedia and electronic resources based on district-adopted, board-approved selection policies
- develop and maintain a balanced collection based on curriculum and user needs, proportionate to student population and special programs
- provide access to state-of-the-art technology
- offer access to resources via world wide networks
- reflect a diverse community

Library program management in a model school program:

- has a manager who plans, organizes, staffs, directs, coordinates, reports and budgets
- is staffed proportionate to student population throughout the entire instructional day by certified librarians and trained clerical personnel
- receives annual funding sufficient to facilitate student academic achievement based, at minimum, on a percentage of the districts and campus instructional budget
- receives additional funding for library materials to support special programs assigned to the campus
- offers opportunities for professional growth and staff development for library staff
- is evaluated by tools and standards designed for library personnel
- seeks collaborative library and information technology initiatives such as partnerships with education service centers, other school libraries, public and academic libraries and technology consortia
- informs the school community about library programs, resources and services

Facilities for a model school library program:

- are housed in a barrier-free, flexible, functional facility of sufficient size, proportionate to the student population
- ensure access to resources and information during and beyond the instructional day and school year
- are designed to be attractive and inviting, with room for growth

Texas school districts have developed and are implementing extensive tools for evaluation of their school library programs based on the new standards. In June 1998, the Texas Education Agency facilitated a focus group of TEA curriculum and instructional technology staff and 40 school librarians who analyzed the four foundation areas of the TEKS. That focus group identified specific knowledge and skills that emphasize information processing and that can most effectively be taught collaboratively with classroom teachers and librarians. The results of the focus group will be shared with teachers and librarians through print and electronic publications in the fall.

While the Texas school librarians have always realized their role as a certified teacher above all else, the standards make the alignment clear to other educators.

Since the adoption of these guidelines, individual school districts have created instruments to measure their library programs and evaluated those library programs using the new standards as guidelines. The Texas Education Agency has held conferences, videoconferences and distance learning sessions to allow districts to share the instruments they created with other districts across Texas.

The Richardson ISD considers the library to be a vital and integral part of our total school program. We recognize that major changes are taking place in the role and responsibilities of the library media specialist, in the need for current resources, in the need for facilities that support technology and in the manner in which current information is delivered to our students. The Richardson ISD is committed to making these changes and to meeting the new Texas School Library Standards.

Dr. Kirk London, assistant superintendent, Richardson ISD

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Educator Resources

Centers for Educator Development

Several of the recommendations in the *Long-Range Plan for Technology, 1996-2010* address the development of educator resources to assist teachers. Statewide Curriculum Centers provide resources for the implementation of the Texas Essential Knowledge and Skills in various foundation and enrichment areas. The Centers for Educator Development (CEDs) serve as curriculum centers in the core content areas; working to help educators become familiar with the TEKS and incorporate them effectively into instruction. The curriculum centers developed a variety of resources available via websites, CD-ROM, video, multimedia presentations, as well as print materials. These resources may be accessed through the TEA website. The Texas Center for Educational Technology and TEA developed and disseminated the Sharing Technology Applications Resources with Teachers (START) project. Centers are also under development in several of the enrichment areas.

In addition, the Texas Education Agency's Division of Career and Technology Education contracts with curriculum centers at five Texas universities. These centers developed curriculum and provide professional development for the seven Career and Technology Education curriculum areas: Agricultural Science and Natural Resources, Business and Marketing, Career Orientation, Health Science and Technology, Home Economics, Technology Education/Industrial Technology, and Trade and Industrial Education.

A Texas Essential Knowledge and Skills CD-ROM was developed and sent to each Texas public school campus. On this CD-ROM, keyword searches can be made using the TEKS in all areas to find similar topics in various subject areas. In addition to information and resources available from the statewide Curriculum Centers, there are many other educator resources available from TEA that focus on curriculum and related issues.

The full text of the Texas Essential Knowledge and Skills for all content areas can be found on the TEA website with links to the Centers for Educator Development websites. The TEA website also has a link to the most recent *Frequently Asked Questions* (FAQs) regarding the curriculum and 19 Texas Education Code, Chapter 74, Curriculum Rules. There is information on instructional materials and assessment as well as the timeline for TEKS implementation and a calendar of professional development activities.

The TEKS CD-ROM, sent to each Texas public school, provides curriculum information and resources.

The Career and Technology Education portion of the Agency website contains professional development and conference calendars for each of its seven curriculum areas, links to the TEKS section of the TEA site and links to the five Texas Career and Technology Education curriculum centers and various curriculum centers outside Texas. The site also gives educators access to completed education service center descriptions of all Career and Technology Education courses under the TEKS through an online version of the *Catalog of Career and Technology Courses*.

After the TEKS were adopted, information was shared that focused on the changes between the Essential Elements and the TEKS in each of the subject areas. During the 1997-1998 school year, the latest TEKS implementation information was given to elementary and secondary schools. Information focusing on the Technology Applications and the integration of technology into other content areas was also shared. Information about implementation of the TEKS was disseminated in a variety of ways; through the Internet and the statewide telecommunications networks, the Texas School Telecommunications Access Resource (T-STAR) and the Texas Education Telecommunications Network (TETN).

Sharing Technology Applications Resources with Teachers

To assist educators in implementing the Technology Applications Texas Essential Knowledge and Skills, the Texas Center for Educational Technology (TCET) at the University of North Texas, with support from the Texas Education Agency, developed the Sharing Technology Applications Resources with Teachers (START) project. TCET collaborated with the education service centers, Centers for Educator Development, Centers for Professional Development and Technology, regional laboratories and Texas school districts in preparing materials to assist curriculum directors, technology directors, principals, librarians and teachers with the implementation of this curriculum and TEKS.

The START package:

- provides awareness information and resources about the Technology Applications curriculum including teaching the Technology Applications TEKS and applying them across content areas with examples from Texas school districts
- provides resources for districts as they plan for the implementation of this curriculum
- provides a mechanism for districts that are currently implementing the Technology Applications curriculum and the TEKS to share their success stories and strategies with others

Funded by the Texas Education Agency through the U.S. Department of Education Goals 2000 program, Sharing Technology Applications Resources with Teachers Phase I includes:

- a START CD-ROM containing resources for implementation of the Technology Applications curriculum and TEKS, including electronic, print and website resources (linked to over 200 sites). These resources also focus on the planning and professional development needed for this curriculum.
- the START website containing resources similar to the START CD-ROM, and allows regular updates and additional resources to be added to the dynamic website.
- multimedia materials including a slide show presentation, color transparencies and a videotape that introduces the Technology Applications TEKS and the START package.
- print materials including a *Technology Applications Companion (K-12)*, an introductory brochure and the following publications produced by TCET: *Educational Acceptable Use Policies, Web Spinning: Creating Websites for Educators, IMAGES: The PARTNERS Project in Central Texas, and IMAGES: Lower Valley CPDT.*

The START awareness package was disseminated to all Texas school districts, Texas charter schools, education service centers and Centers for Educator Development. Public school district curriculum/Technology Applications contacts received a START CD-ROM for each campus. Materials were provided via the 20 education service centers and dissemination meetings were customized by the individual region. Additional copies of the complete package or specific components were obtained from TCET.

The Technology Applications awareness package serves as a good starting point for schools as they prepare for the implementation of the Technology Applications TEKS.

Phase II of the START project will provide additional resources for implementation of Technology Applications and establishment of curriculum connections that use technology in all content areas. State resources will be used by TCET to provide products and services that include:

- updates to the START website regarding resources for teaching and for implementing the Technology Applications TEKS.
- print materials, including a *Technology Applications Companion (K-12) Update* to highlight resources shared by educators from across the state.

- START Curriculum Connections links from the START website which support connections between the Technology Applications TEKS and the foundation curriculum areas. Links to other curriculum areas are planned for the future.
- a curriculum integration guide for educators which includes information, examples and promising practices that focus on making connections between the Technology Applications TEKS and TEKS in the foundation curriculum areas.
- a chart on Technology Applications connections across the curriculum for Grades K-8. An additional chart showing connections for Grades 9-12 is planned for future updates.
- START Curriculum Connections professional development materials to be shared statewide with curriculum trainers that assist in making connections between the Technology Applications and foundation curriculum TEKS.

Phase II of the START package will be disseminated to all Texas school districts, Texas charter schools, education service centers and Centers for Educator Development during the 1998-99 school year. A CD-ROM version will be distributed through the 20 education service centers to all public school campuses. Additional copies of the complete package or specific components will be available from TCET. For more information on the START CD-ROM as well as other resources available to all educators, visit the START website at http://www.tea.state.tx.us/technology/START or call TCET at (940) 565-4433.

Future plans are to continue providing resources, designed for use by all educators and education stakeholders, that focus on the implementation of the Technology Applications TEKS and integration into all content areas, Grades K-12.

Instructional Materials

Texas is one of 22 states with a process for approval or adoption of instructional materials. The Texas Constitution, Article VII, Section 3, requires that the State Board of Education set aside sufficient money to provide free textbooks for children attending the public schools in the state. Funds to be expended on instructional materials are appropriated by the Texas Legislature.

Conforming and Nonconforming Instructional Materials

The Texas Education Code provides for adoption of two separate lists of instructional materials. The "conforming" list is to consist of instructional materials submitted for approval that meet manufacturing standards adopted by the State Board of Education, contain material covering each element of the Texas Essential Knowledge and Skills, and are free of factual errors. The "nonconforming" list is to consist of instructional materials submitted for approval that meet manufacturing standards adopted by the State Board of Education, contain material covering at least half, but not all, of the elements of the Texas Essential Knowledge and Skills and are free of factual errors. Both conforming and nonconforming adopted instructional materials may be purchased by the state for school districts and open-enrollment charter schools.

The first conforming and nonconforming textbooks submitted and reviewed were adopted in November 1997. The introduction of the conforming/nonconforming concept opened the door to many new participants in the adoption process, including developers of electronic products. As a result of the changes in the adoption process, schools now have many more choices of electronic and print products in the subject areas called for in Proclamation 1995. Instructional material submitted under Proclamation 1996, including new electronic products, are scheduled were reviewed in spring and summer 1998 with adoption by the State Board of Education scheduled in November 1998.

Since the 1960s, Texas has followed a mixed subject-area textbook adoption cycle. Under this cycle, books in several different content areas and grade levels were adopted in a given year.

In 1997, the State Board of Education voted to move to a single subject-area adoption process for kindergarten through Grade 12. This process is designed to align adoption of instructional materials in one content area with review of the Texas Essential Knowledge and Skills in that content area and with the statewide student assessment. The adoption cycle has been extended from six years to eight years. In keeping with the Texas Education Code, however, textbooks in the foundation areas will be reviewed after six years to determine whether new textbooks are needed sooner.

The transition to this new approach is contained in Proclamation 1997, which focuses on two subject areas: English language arts and reading, and science, Grades 1-5. Books in these content areas, fully aligned with the TEKS, will enter classrooms in 2000. In addition, because the State Board of Education adopted Algebra I, Geometry, and Algebra II TEKS in 1996, concurrent with adoption of materials in those subjects under the previous plan, textbooks aligned with the TEKS in these subjects were in place in classrooms in the fall of 1998.

Proclamation 1998 focuses solely on English language arts and reading, including Spanish language arts and English as a second language. The amended textbook adoption cycle and Proclamation 1998 may be accessed through the TEA website at http://www.tea.state.tx.us/resources.

In November 1990, the State Board of Education adopted the first electronic instructional media system ever adopted in Texas - or the nation - by adopting *Windows on Science*, a videodisc-based program for elementary science. November 1992 was the first time in Texas history that only electronic instructional media systems could be submitted for Computer Literacy, which was a required course at the middle school level at that time.

Now there is another first in Texas history. In 1998, the Board adopted a publisher's Internet-enabled software. The product is the *Biology Explorer* series, developed and published by LOGAL Educational Software and Systems. It is an interactive simulation software. This product is on the non-conforming list for biology, which means it met 50 to 99 percent of the state's required curriculum elements. As of September 1998, 146 Texas schools had already purchased this new interactive instructional tool.

Biology Explorer is offered on CD-ROM or via the Internet. It includes the following areas: Photosynthesis, Genetics, Molecular Biology, Population Ecology, Respiratory System and Cardiovascular System. The software includes on-screen tutorials with text and audio and assessment tools to record student work. The online version is called LOGAL.net and can be accessed with a site license at http://www.LOGAL.net and downloaded as LOGAL Express software, a software engine that guides users through LOGAL.net's product offerings and activities.

LOGAL.net allows teachers to select from 22 science and seven mathematics offerings and then from a list of 2,000 corresponding activities. Teachers and students can communicate via email.

Braille, Large-Type and Audiotape Instructional Materials

As a result of the 74th Legislative Session, the Textbook Administration coordinated a study of issues related to making information in electronic textbooks accessible to students who are blind or visually impaired. The report, Accessibility of Information in Electronic Textbooks for Students Who Are Blind or Visually Impaired, was submitted to the 75th Legislature in 1997. This study followed the efforts of a legislatively-mandated commission which was formed to collaborate with publishers on developing standards for production of Braille textbooks.

The State Board of Education is authorized to acquire, purchase and contract for free instructional materials for the education of blind and visually impaired public school students. Local school districts submit orders for Braille and large-type materials to the Agency, which manages acquisition. Teachers who are blind or visually impaired are provided with Braille or large-type teacher materials to accompany materials used in the instruction of students. A contractor provides audiotape instructional materials to school districts. Publishers are required to provide the Agency with computerized files for rapid production of adopted Braille instructional materials whenever such files are requested by the State Board of Education.

Computer Network Study Project

Changes in the textbook adoption process encourage the submission of electronic textbooks for use in Texas classrooms. Senate Bill 294, passed in 1997, established the Computer Network Study Project to determine the costs and benefits of using computer networks, including the Internet, in public schools. An advisory committee was appointed to assist the Agency with the study project along with a subcommittee to investigate the feasibility and cost-effectiveness of developing electronic textbooks that may be used by students who are blind or have other disabilities. The advisory committee includes legislators, textbook publishers, educators, students, technology experts and Agency staff. The results of this study will be provided to the Legislature in the spring of 1999.

Software Selection Tools: The Educational Software Selector

The Educational Software Selector (TESS) is a searchable database designed to assist educators in making informed decisions when selecting and purchasing software for use in the classroom.

TESS is a comprehensive listing of approximately 20,000 school software products from over 1,000 publishers. TESS is produced by Educational Products Information Exchange (EPIE) Institute, a non-profit, independent consumer organization, and is updated twice a year.

Specific software information is given for each software package, including:

- education service center description of the software
- targeted grade level
- subject area
- target audience
- list of package components (teacher/student guide, reference manual, CD-ROM, videodisks and/or computer disks, etc.)
- hardware/software requirements
- learner-group size
- supplier information
- review citations (including name of review service or publication; date or issue number; and positive, negative, or mixed rating)
- EPIE Institute designation of "highly rated" software

As a member of the States' Consortium for Improving Software Selection (SCISS), Texas receives a state license for TESS. This allows all Texas educators to have access to the database, load it on networks and make copies as needed. The TESS CD is available through the EPIE Institute. Technical assistance and training in the use of TESS is available at education service centers. Educators may also search the TESS database in the Technology Preview Centers at education service centers.

The fall 1997 TESS database is also found on the START CD-ROM produced by the Texas Center for Educational Technology. The START CD-ROM was made available only to Texas educators to ensure compliance with the software agreement with EPIE Institute for TESS.

As the TEKS are implemented and technology is integrated into the various curricular areas, TESS will continue to be a useful resource for educators as they search for appropriate software that will meet their needs.

Southern Regional Education Board: EvaluTech

The Southern Regional Education Board, (SREB) created in 1948 by Southern states, helps government and education leaders work cooperatively to advance education and, in doing so, to improve the social and economic life of the region. SREB assists state leaders by: directing attention to key issues; collecting, compiling and analyzing comparable data; conducting broad studies; and initiating discussions that lead to recommendations for state and institutional long-range planning, actions and policy proposals. The 16 member states are Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.

EvaluTech is a searchable database of curriculum-related instructional materials evaluated and recommended for kindergarten through Grade 12. It is available through the joint efforts of the Southern Regional Education Board's Education Technology Cooperative and the North Carolina Department of Public Instruction in collaboration with the departments of education of the SREB member states. The evaluations are used in the *School Library Journal* and are now available by electronic access to Texas educators. Access to this database assists Texas educators in making decisions about the adoption of instructional materials that integrate technology into the Texas Essential Knowledge and Skills.

I don't think we've hit the tip of the iceberg yet for what satellites have to offer.

Mark Peters
Hartley ISD

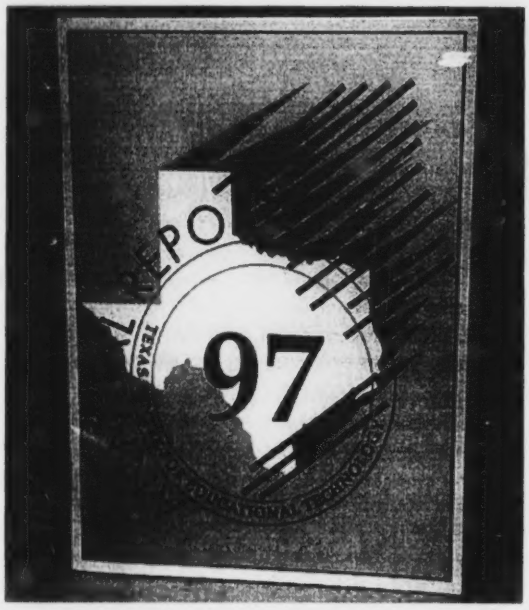
The Texas Center for Educational Technology

The Texas Center for Educational Technology (TCET), created by Texas legislative statute in 1990, provides educator resources including technology research, development, and evaluation and grant support for Texas schools. TCET focuses on the following activities:

- Research - TCET sponsors applied research projects designed to increase understanding of the teaching and learning process. TCET staff and experts in the field of technology education collaboratively generate TCET research topics.
- Development - TCET assists educators in developing new applications for existing technologies by creating collaboratives of school district personnel, corporate representatives and university experts. Examples include planning curriculum integration projects using distance learning and delineating a plan for a total reading intervention program for at-risk students.
- Evaluation - TCET offers comprehensive evaluation services that include designing, conducting and reporting on the evaluation. School boards, superintendents and principals ask TCET to assist in conducting evaluations within their district. Usually these projects result from a community's desire to know if the dollars spent on technology have improved their educational delivery system. TCET also engages in evaluations of state and federal programs.
- Grant Support - TCET assists Texas educators in locating external funding for technology-related projects. TCET provides a listing of foundations and state and federal funding opportunities on its website. TCET also assists educators in the writing of grant proposals and in organizing grant-writing workshops.

TCET produces many research-based publications and products each year. These products are made available to all Texas school districts and teacher education programs via the Internet and through the education service centers, an Annual 21st Century Teaching and Learning Symposium, and program strands at the annual Texas Computer Education Association Conference and a wide variety of regional and local conferences.

TCET was originally funded by appropriations from the Legislature; received contributions from TCET members; secured federal and state grants; and established partnerships with school districts and other entities. While state appropriations for the center ended in 1997, TCET continues to receive support from TCET members, federal and state grants and contracts with TEA, education service centers, school districts and other entities.



TCET provides educator resources, such as technology research, development and evaluation and grant support for Texas schools.

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Integration of Technology Into Teaching and Learning

The integration of technology into teaching and learning is key to fulfilling the vision outlined in the *Long-Range Plan for Technology, 1996-2010.* Technology has been used to automate many functions in the classroom; as a tool to enhance the productivity of students and teachers; and as a mechanism to communicate beyond the classroom. As teachers and students gain more experience in using technology tools, the need for effective integration of the use of these tools to accomplish learning goals continues to grow. Ongoing initiatives and grant programs provide opportunities for schools to explore effective integration strategies and share those strategies with others.

The Texas Mentor School Network

The Mentor School Network, a statewide initiative since 1991, is comprised of elementary, middle and high schools committed to research-based practices. This very diverse group of rural, small urban, large urban, small suburban, and large suburban schools use different approaches to the integration of technology based on their student and staff needs.

Information and professional development opportunities are part of the Mentor Schools' process for sharing "best practices" from across Texas. Newsletters mailed to every campus in the state highlight researched-based practices, including practices involving technology. *Creating Effective Schools Through the Use of Technology,* the lead article of the spring 1998 edition of *Texas Mentor School Network News,* cites research from the *Journal of Staff Development* and other resources to give educators the big picture along with information about implementation resources from TEA and TCET's START project.

In another edition of the newsletter, Sharon Jackson, coordinator for the Early Childhood and Elementary School Division of the Mentor School Network, discusses the new Texas Essential Knowledge and Skills for technology and reflects on national issues about technology.

A *Texas Mentor School Network News* article entitled *Harnessing Technology to Improve Student Learning: An Interview with Linda Roberts,* explores the value of technology in the classroom. In the article, Dr. Roberts, director of the Office of Educational Technology of the U.S. Department of Education, states that integration of technology is critical and that teachers must be given time to think about what integration will look like in the classroom. She cautions that student achievement is not the only concern regarding students' use of technology. Students must be able to demonstrate knowledge and skills in the use of technology today and in the future. According to Dr. Roberts, the presence of technology in the future will bring about a more student-centered attitude and will help create an:

"...engaging and supportive learning environment that is more flexible and more accommodating to student needs and student interests."

Barbara Stagner, principal at Milliken Middle School, shared information about research-based practices in a professional development program produced by the Texas Education Agency and broadcast over the T-STAR Network to Texas schools.

Mentor Schools work because they have access to the latest teaching tools—from trying out computer graphics and drawing to (strategies for boosting elementary schools') TAAS via satellite.

Barbara Stagner, prinicipal
Milliken Middle School, Lewisville ISD

Like other Mentor Schools, Berta Cabaza Middle School in San Benito ISD makes professional development for teachers a priority.

Our primary goal is to saturate the teachers with so much practice on computers that using computers becomes second nature to them. So that they, in turn, will make assignments using the computer in their classrooms.

Sandra Tumberline, Technology Coordinator
Berta Cabaza Middle School, San Benito ISD

Berta Cabaza Middle School in San Benito ISD and Jones Intermediate in Waller ISD have engaged in two-way audio/two-way video classroom sessions for many years. Putting students with students and teachers with teachers increases communication and the sharing of successful strategies and programs. Jamie Horn, technology specialist at Jones, states that with the Internet in the classroom to facilitate instruction and a carefully developed plan with benchmarks for all faculty, students and teachers will become skilled users of technology. Throughout Texas schools, students are using technology and Mentor School Network campuses are helping to prepare students for success in the information age.

We are preparing students to live in a technologically driven environment; whether they go to college or into the job market. Their success is going to depend on these technology and presentation skills.

Joan Gore, computer coordinator
Milliken Middle School, Lewisville ISD

Projects for Educational Technology

Projects for Educational Technology (PETs) are authorized by Chapter 32 of the Texas Education Code which authorizes the Agency to establish technology demonstration programs to:

- investigate the uses, effectiveness and feasibility of technologies for education
- provide models for effective education using technology

The Projects for Educational Technology program offers planning and implementation grants which allow districts or collaboratives to design plans for using technology to enhance staff development and student learning. Some districts used their grant to develop strategic technology plans; others developed classroom strategies for the integration of technology; and others shared staff development models. PETs demonstration sites shared their successful accomplishments via websites, CD-ROM, and multimedia as well as by traditional means.

Planning prior to investment or implementation of technology is a necessity to avoid costly fiscal mistakes, and to avoid even more critical misjudgments in instructional programs delivered to students.

Taken from the PETS Planning Grant report by Alice ISD

Planning grants enabled recipients to engage in a technology planning process that often led to additional grants and other resources for implementation of their plan. Implementation grants focused on staff development, integration of technology into the curriculum and library/media services. Grant projects serve as demonstration sites to assist others in technology planning. These projects helped develop relevant curriculum materials that support the TEKS. Many PETs projects actively expanded the involvement of parents as core members and critical stakeholders on technology planning teams.

It's about time we, as superintendents, focused on using technology in the classroom for instructional purposes.

Superintendent
Cumby ISD

Results

The results of PETs grants include:

- increased numbers/models of instructional technologists at the district and campus level providing technical support
- increased cadre of Texas educators and administrators trained to integrate technology into the TEKS curriculum
- increased cadre of Texas educators and administrators trained to serve as telementors
- increased number of demonstration sites to help others plan for technology
- increased statewide capacity of multilevel support
- establishment of a large regional and/or statewide knowledge-building learning community that creates and adapts learning opportunities to meet the diverse needs of Texas learners
- expanded vision of Technology Applications, technology integration and distance learning
- establishment of shared leadership models
- expansion of new pedagogy to include mechanisms for exploring multiple and differing perspectives, techniques for building upon prior knowledge, techniques for individual and group instruction that encourage problem solving and support the TEKS

- development of relevant K-12 curriculum materials that support the TEKS
- construction of flexible and usable facilities which easily incorporate a range of technology tools
- development of a mindset that sees technology planning as both an ongoing and long-term commitment
- expansion of evaluation structures that support teaching and learning

Technology Literacy Challenge Fund: Technology Integration in Education

The Technology Integration in Education (TIE) is the Texas initiative funded by the federal Technology Literacy Challenge Fund (TLCF). Since 1997 the Texas Education Agency has awarded $48.5 million to districts and collaboratives of districts to assist in the implementation of the *Long-Range Plan for Technology, 1996-2010.*

Grant applications focused on one of the four main areas of the plan:

- Teaching and Learning
- Educator Preparation and Development
- Administration and Support Services
- Infrastructure for Technology

However, the projects often impacted more than one of these areas and all grant applications were required to include a staff development component.

The Technology Integration in Education initiative allows districts to reevaluate and redesign curriculum and to explore integration strategies for the infusion of technology into the curriculum. The end result of such activities is a systemic change in the delivery of curriculum and instruction to all learners.

Seven awards funded under the 1997 TIE initiative focused on teaching and learning. Through collaborative efforts, districts received funding and/or services. These districts were able to:

- install or expand networking capabilities, including Internet access
- provide training and staff development needed for using technology and integrating it into the curriculum
- provide curricular and staff development resources online through Internet and intranet capabilities
- integrate technology into the TEKS;
- align technology application TEKS with core content areas
- provide workstations to teachers to create lessons for staff development use and classroom use demonstrating integration of technology into curricular areas.

Even though it has been a lot of extra work this year, I would not trade it for anything. The amount of knowledge the students and teachers have gained this year is tremendous. The information available on the Internet has really supplemented our textbooks.

Donna Farley, teacher
Snyder ISD-TIE grant recipient

Specific examples of changes in teaching and learning from awarded districts are:

- Canyon ISD created lesson plans that reflect the TEKS and are shared online and made available to every campus and classroom. The student to computer ratio dropped from 8:1 to the *Long-Range Plan for Technology, 1996-2010* target of 3:1. The teacher to computer ratio is almost 1:1.
- Instructional models in the areas of curriculum integration and staff development are available online, allowing Region 10 teachers to access them locally without travel to the education service center. Ninety districts in the region are connected via a T1 line. Thus every district and, in most cases, every campus have Internet access. Approximately 1,000 teachers received training; 600 of them received training on use of the Internet in the classroom.
- Hillsboro ISD implemented systemic changes in science curriculum at the middle school level with the long-term goal to enroll more students in advanced science classes at the high school level. All students have e-mail addresses for communicating with peers and mentors throughout the world. Online curriculum resources are provided to enhance integration of technology into the science curriculum.

- Lockney ISD teachers are able to integrate technology into teaching and learning because a 1:1 teacher to computer ratio was achieved for the teachers participating in the grant. In addition, 92% of the libraries in the participating districts and almost 60% of classrooms involved in the grant have Internet access; providing students and teachers with access to online resources.
- Rogers ISD students communicate online with subject matter experts throughout the world to solve community-based problems.

Many of the 1997 Teaching and Learning awards require extensive implementation of capital outlay items to achieve initial goals. Since the implementation and staff development will take time, evidence of results will not be available until the end of the 1998-1999 school year.

Ten TIE projects, impacting 70 districts, were awarded in June 1998 in the Teaching and Learning category. Results of these awards will not become available until the end of the 1999-2000 school year. However, early indicators reveal that teachers and educators are willing to examine and embrace changes resulting from the pervasiveness of technology and to incorporate more and more technology into the teaching and learning environment.

The Texas Library Connection

The Texas Library Connection (TLC) was created in response to legislation that called for the development of a database of the holdings of school libraries in the state. This statewide technology initiative, administered by the Texas Education Agency, provides instructional materials in the form of current, relevant electronic information resources. The mission of TLC is to provide equitable access to these resources to all students and educators, regardless of a district's geographic location or financial resources.

> *The Texas Library Connection is a very vital support and a primary resource for students and teachers as they access information. Basically, the second domain of the Technology Applications Texas Essential Knowledge and Skills is the acquisition of information. And there is no better place to do that than through the Texas Library Connection.*
>
> Patsy Lanclos, private consultant
> formerly with Spring Branch ISD

The Texas Library Connection is a fundamental tool in the support of distance learning and distributed learning. Distance learning cannot be effective without information resources to support the content of the courses. Those information resources may not be available locally. The TLC equalizes learning opportunities for students and educators by providing access to the information resources needed for support of these new types of learning, regardless of where the resources may be located.

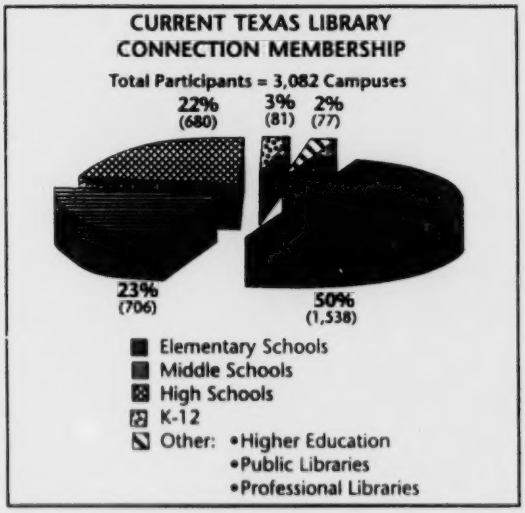
The current direction of the Texas Library Connection is based on a two-year pilot project administered by the Texas Education Agency during the 1996-1997 school year to test the feasibility of offering full-text, electronic information resources to Texas schools.

An external review of the Texas Library Connection Pilot Project was conducted by EGS Consulting, who spent several months gathering data and interviewing students, teachers, administrators, librarians and education service center librarians who had participated in the pilot project. Results of that study indicated that, where the pilot project was implemented effectively, it was so tremendously successful that access to the electronic full-text databases was considered pivotal in changing teaching methods from teacher-centered to student-centered. The study identified those common elements that contributed to making the pilot project a success.

Common elements for success include:

- a robust connection to the Internet located in the library
- sufficiently updated computers with internal networks
- a technologically literate librarian who accepted responsibility for learning how to use the databases and teaching students and educators how to use the databases

> *We are using information during the summer to plan our integration of curriculum, information skills and technology TEKS for the next school year. We have very few back issues of magazines and the ProQuest database is going to be invaluable to us for student research.*
>
> Linda Cross
> Jim Ned Middle School

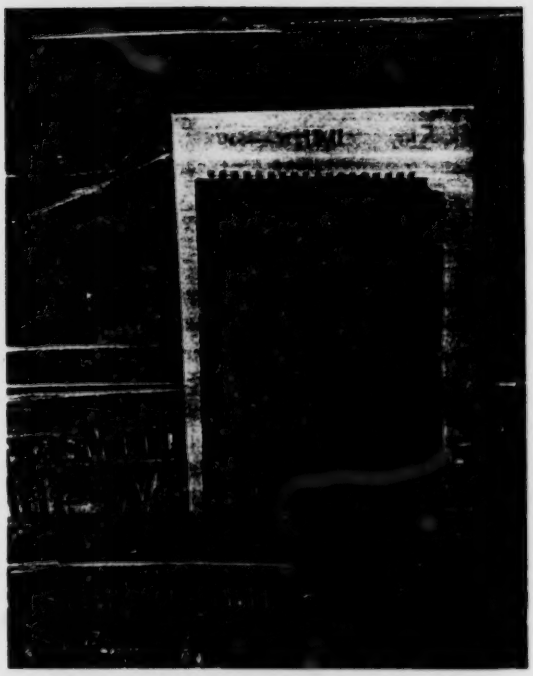


Based on the findings of the pilot project study, the Texas Education Agency focused the funding of licenses to access electronic, full-text databases to those campuses that have the elements identified by the study as contributing to successful implementation. The Texas Education Agency made the Texas Library Connection Union Database, Britannica Online and UMI's ProQuest Direct available to more than 3,000 campuses during the 1997-98 school year.

The TLC Union Database allows students and educators to access and send electronic requests and to retrieve books, software and videos from the more than 17 million items held in participating school libraries. Students and educators can view the holdings of their local library and libraries in their district, region, or state from their classrooms, local library or even their home through this initiative. This enables students to reach beyond local walls to develop the knowledge and skills of accessing and retrieving information from a global perspective.

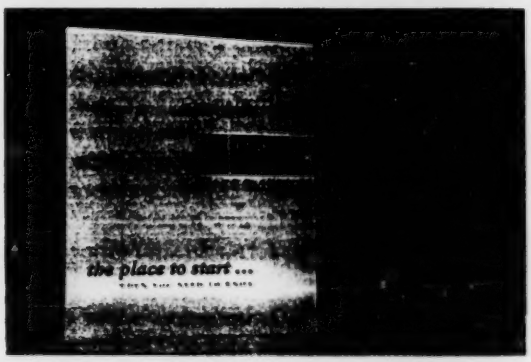
The Texas Library Connection is one of the most encouraging developments for school libraries since the technology avalanche began. For the first time, libraries in small rural school districts are able to provide the quality of information and research training previously restricted to larger and/or wealthier schools.

Joan Driver
Van High School



UMI's Proquest Direct gives students and educators access to the full-text of magazines, journals, and newspapers.

UMI's ProQuest Direct allows students and educators to access and retrieve the full-text contents of magazines, journals and local, regional, state, national and international newspapers. Britannica Online provides the full text of the print version of the Encyclopedia Britannica plus Internet links evaluated by the editors of Encyclopedia Britannica.

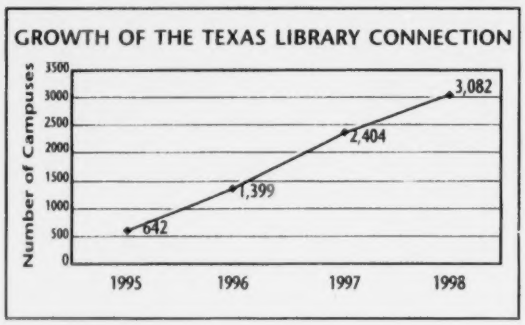


Britannica Online provides more than 3,000 campuses with the Encylopedia Britannica plus Internet links.

ProQuest has continued to be a great resource for our students. The kids working on a major medieval project have found wonderful material from British sources available through ProQuest. The gifted and talented teacher is thrilled with the amount of GOOD material that the kids are uncovering.

Deborah Svenson, M.L.S.
Forestwood Middle School, Lewisville ISD

While approximately 3,000 campuses in Texas have access to the resources offered through the Texas Library Connection, the remaining 4,000 campuses, which often have the fewest resources, need access to TLC resources. Campuses not participating at this time often have no library staff who can assume responsibility for teaching students and educators how to use these resources. Some have no student access to the resources. Some have limited access even to local resources, since their libraries are not yet automated. These campuses often have very limited information resources for student use. Access to this initiative would provide much-needed information resources at the point of need. Each year, TLC offers an enrollment period for additional districts and campuses to participate in TLC. New enrollment guidelines will enable charter schools and alternative campuses to take advantage of TLC resources.



The Texas Library Connection has initiated and successfully implemented partnerships with providers of instructional products and services to secure rights and cost efficiencies for Texas schools. The cost for one individual campus to license the databases provided through the Texas Library Connection is approximately $7,000. The Texas Education Agency has secured the rights to offer these databases at a cost of approximately $500 per campus.

A few minutes ago, our advanced Spanish/ESL teacher asked me for a particular article on Hispanics from a May issue of U. S. News, which we no longer get in paper due to budget crunch. I was able to find it for her quickly using the magazine title/date search capabilities in ProQuest. She was impressed. Am I happy? You bet!

Joan Driver
Van High School

The Texas Library Connection worked with information providers to develop content for information resources that are based on Texas students' and educators' needs. UMI constructed a database of Texas local, regional and state newspapers available through the TLC to facilitate student and educator research of Texas issues. Auto-Graphics, Inc., who developed and maintains the TLC Union Database, has redefined search strategies, search engines and scoping mechanisms to meet Texas needs. Encyclopedia Britannica reviewed and made changes in licensing agreements and procedures to facilitate collaboration of several Texas State agencies on licensing its Britannica Online database for school, public and academic libraries.

Interest in the Texas Library Connection has grown exponentially due at least in part to the availability of external funding programs to assist schools in upgrading technology. Participation has grown from 153 districts in August 1996, to approximately 600 districts in August 1998.

Distance Learning

Distance learning is available from a wide variety of providers across the U.S. and is accessible to school districts via the Internet, two-way video-conferencing and satellite. Ongoing Texas Education Agency statewide technology initiatives and projects that are part of the Commissioner's Public Access Initiative facilitate access to these distance learning opportunities.

Here at Luling High School, our sophomore English class has a thematic poetry unit. One of the students picked science fiction as their theme. We came up with a science fiction poetry anthology by Robert Frazier. Of course we didn't have that book in our library media center. It was located in one of the Plano school libraries. I used interlibrary loan to borrow that book for the English project and I was able to get the bibliographic information to be able to order it. I am so glad we now have access to TLC!

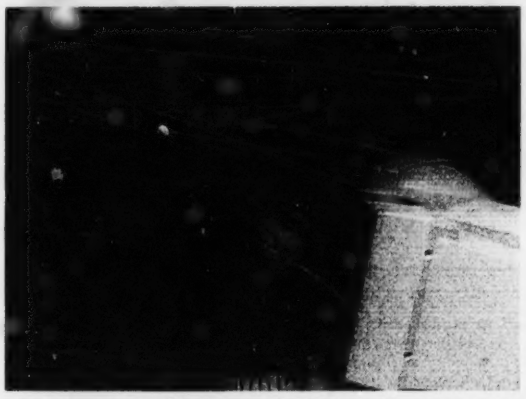
Debbie Frazier-LeBlanc
Luling High School

Each school district determines for itself the most appropriate distance learning delivery method and chooses the distance learning provider best suited to meet the needs of local students. Expansion of the Texas Education Telecommunications Network (TETN) and integration of the education service centers' regional networks into a cohesive, technically compatible statewide system, as outlined in the Commissioner's Public Access Initiative, will expand the capability of campuses to participate in distance learning delivered by the Internet, videoconferencing and/or satellite.

The use of multiple technologies increases the effectiveness of the distance learning experience. This blending of technologies is a valuable distance learning strategy. For instance, teachers can direct their students to use the Texas Library Connection resources accessed via the Internet to do research prior to participation in a live, satellite-delivered electronic field trip. During the electronic field trip students can see the subject they are studying in action and pose questions directly to the experts. Upon their return, students can interact with other students and mentors around the globe through e-mail and Internet discussion groups and then create websites and multimedia products to share what they have learned. Through the use of a variety of distance learning mediums students and teachers have access to resources within their district, region, state and beyond.

Distance Learning via the Internet

To ensure that all schools have access to online distance learning resources, the Texas Education Agency has asked the education service centers to "serve the under-served" by becoming the Internet Service Providers for schools that are unable to secure service from a commercial provider. In addition, any schools that choose to contract with their education service center for Internet services are free to do so. As a result, students and educators across the state will be ensured access to the wealth of educational resources available via the Internet.



The Internet provides a wealth of educational resources to students and educators.

The Internet offers students and educators the opportunity to conduct research; access news groups, discussion groups, and online databases; send and receive e-mail; interact electronically with mentors and experts in the field; and participate in for-credit courses.

In addition, the Texas Library Connection supports both traditional classroom and distance learning activities by providing access to distance learning resources such as *Time* magazine, *US News and World Report*, the *New York Times*, *The Wall Street Journal* through statewide licenses purchased by TLC. The Texas Library Connection also makes it possible for students to borrow books, periodicals, videotapes and other materials. A vast holding of full-text materials is available to students through TLC.

Distance Learning via Videoconferencing

Grant programs administered by the Texas Education Agency and others support districts' ability to take advantage of distance learning opportunities of all kinds, including two-way videoconferencing. These grants assist schools in their efforts to effectively share teachers and for-credit courses via video-conferencing collaboratives. One example of such a grant is the *Creating Connections** consortium.

> *What we would like to have as the norm, is that learning occurs anywhere, everywhere, all of the time. With electronic delivery, there is no limit of time and place, and there is no restriction for any child or any person. Our children are not limited to an institution and only to what that building has to offer inside its walls.*
>
> Rita Dobbs, director
> Creating Connections

Creating Connections is an alliance of 24 school districts, 6 educational service centers, and 2 universities from 11 counties in East, Central, and West Texas, with the primary goal of implementing an interactive electronic learning system.

Creating Connections is based on an expansion of ET-LINC. In 1994, the consortium of schools that comprised ET-LINC applied for and received a planning grant for $25,000 from the Texas Education Agency. The consortium then submitted the *Creating Connections* grant proposal to TEA in April of 1995. The Agency awarded them $1 million for the purpose of developing the electronic system and delivering training, curriculum, and systemic change to schools via distance learning classrooms. In addition, the collaborative project received another $1 million worth of donated equipment and $3 million of in-kind contributions from schools and telephone companies.

Creating Connections uses a DS-3 signal transmitted over fiber optic cable to deliver full-motion video with simultaneous audio, data, and multimedia. The DS-3 connection means there is no compression, time delay, or distortion in the video and audio.

The technology and the design of the classroom are customized for each district, although each has basically the same equipment. The Gladewater ISD classroom, for example, has a teacher multimedia workstation at the front of the room. Above are four monitors, one for projecting teaching materials to the class and three so students at the local site can see students in up to three remote classroom sites. The monitors for the teacher's viewing are on the opposite wall.

Distance learning courses expand students' educational opportunities.

There are three cameras in each classroom. One is a document camera that will zoom in and out to focus on materials placed on the workspace by the teacher. The second camera is focused on the teacher and the third is focused on the students. The teacher controls the image that goes out to all classroom sites. A facilitator at the receiving sites can control the view of students at that site.

The teacher's multimedia workstation has a computer with a CD-ROM drive and a video player/recorder. The control panel also has a place for a laser disc player, should a district want to include one. Other equipment includes a combination fax machine, copier, printer and a telephone connection for the Internet.

Districts participating in *Creating Connections* very often list the ability to offer college courses to high school students as a major benefit. Alba-Golden ISD superintendent, Ferrell Wright, also includes opportunities for adult continuing education classes through their interactive system as one of the reasons for their participation in the project.

Mt. Vernon hopes to offer graduate and under-graduate courses to the community at night.

*Excerpts from the Texas Center for Educational Technology's IMAGES publication, Report Number 18

We see this as a great opportunity for our community to receive educational training without having to commute for two hours to a college campus.

Judy Lindley, technology administrator
Mt. Vernon

A major focus of *Creating Connections* is to train teacher coordinators in the project's 24 schools in East, Central and West Texas to help them become agents and leaders of change. The project has provided training for all schools, beginning with orientation sessions in December 1995 and continuing with additional sessions since that time.

Part of the reason we received a grant initially was the strong modeling efforts built into the program. We mentor whoever is interested—by phone, visits here, visiting with other consortiums, orientation sessions, presentations at conferences—it is a variety of things. One of our goals is to help others shortcut the time and effort to build a similar system.

Peggy Meathenia
former director of Creating Connections

Schools participating in *Creating Connections* share the knowledge they have gained through their experience with leading-edge technology and distance education with schools across the state.

Distance Learning via Satellite

Texas School Telecommunications Access Resource

The Texas School Telecommunications Access Resource (T-STAR) is another key TEA statewide technology initiative that gives all districts equitable access to quality educational resources. T-STAR has expanded the telecommunications capabilities of the Texas public school system by providing districts with satellite communications capabilities. T-STAR allows districts to access the one-way video/two-way audio, satellite-delivered distance learning opportunities of their choice from programming providers across the country.

Districts throughout the state, regardless of geographic location or district wealth, can meet the educational needs of all their students by using T-STAR to access interactive for-credit courses and curriculum enhancement programming such as electronic field trips.

Satellite-delivered courses provide students with educational opportunities that would be unavailable to them otherwise. Schools no longer have to limit their course offerings due to small student enrollment or lack of locally-available teachers certified in a particular subject area. Schools can select courses offered by satellite which meet their individual students' needs and schedules.

Rural school districts can expand their curriculum to include a rich variety of foreign languages, Advanced Placement courses, biology, physics and many other courses that, in the past, were only available to students in larger school districts.

T-STAR has become an effective equalization service by promoting the reception and use of for-credit courses as well as curriculum enhancement and professional development broadcasts.

Gwen Chapman
Wortham ISD

In 1998, a study was conducted by the Texas Center for Educational Technology to measure the effectiveness of satellite-delivered for-credit courses. The study involved districts, chosen at random from different locations around Texas, which currently use satellite-delivered courses for graduation credit. The survey requested information such as reasons for using satellite-delivered courses, decision procedures, effectiveness of the course, types of students expected to enroll and succeed in such courses, types of courses that lend themselves to satellite delivery, and other factors contributing to the success of providing these distance learning courses.

The one opinion consistent to all districts is satisfaction with the satellite-delivered courses. Teachers and students across the state praised the quality and effectiveness of these courses. The research also shows that satellite providers offer a wealth of curriculum support materials as well as complete lesson plans. Survey participants consider the course instruction to be excellent and say the distance learning instructors make every effort to be helpful. K-12 urban, suburban and rural students can also use the interactive television medium of T-STAR to see and experience the world outside their classroom

TCET conducted a study to measure the effectiveness of and the factors contributing to the success of satellite-delivered courses.

and ask questions of the experts. Electronic field trips accessed via T-STAR enable students who live hundreds of miles from the ocean to visit the Gulf of Mexico or the Great Barrier Reef. Students who have never been beyond the boundary of their city can visit a farm or take a trip to Colonial Williamsburg.

T-STAR's role in providing schools with information and encouraging districts to use their T-STAR dish was cited in the TCET study as a contributing factor to the success of satellite-delivered courses. T-STAR's publications, produced by the T-STAR Information and Training Center and funded by the Texas Education Agency, provide a wealth of information to districts and to campus principals, librarians, teachers and counselors.

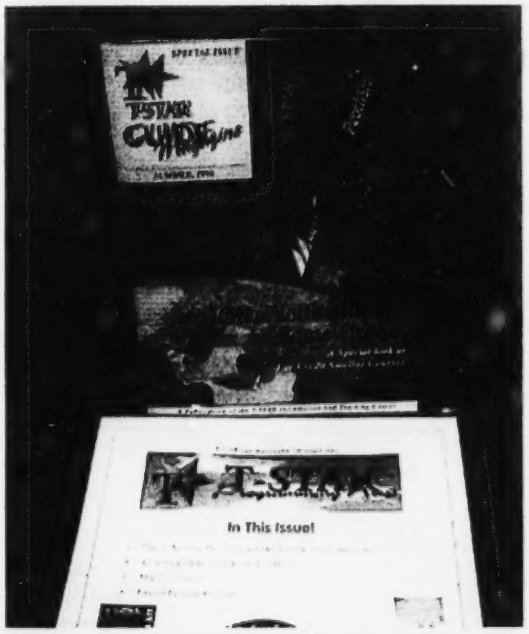
The *T-STAR Guide Magazine* provides information about distance learning, for-credit courses and course providers. The *T-STAR Programming News* highlights curriculum enhancement programming and electronic field trips for all grade levels from programming providers such as PBS, the History Channel, CNN, Virginia Satellite Education Network, HEB TeleVentures and ShareTV.

More information about satellite-delivered distance learning can also be accessed electronically through T-STAR's website at http://www.t-star.org.

By providing links from the T-STAR website to websites of the various educational programming providers, T-STAR gives classroom teachers immediate access to lesson plans and suggestions, which were developed by the programming providers to accompany their programming. Additional resources are available through the Texas Library Connection. Access to these resources is an important step in assisting classroom teachers in the integration of distance learning into their curriculum.

Of special benefit to students, is the flexibility that the steerable T-STAR dish gives to districts. Courses and instructional programming can be selected from a wide variety of providers. This flexibility provides the potential for T-STAR to make a significant, lasting impact on local school instruction.

The Texas Education Agency is one of the many programming providers that districts can choose to tune in to. The Agency provides a wide variety of programming for broadcast over the T-STAR Network that focuses on the Teaching and Learning component of the *Long-Range Plan for Technology, 1996-2010.*



The *T-STAR Guide Magazine* and *Programming News* provide educators with the information they need to successfully use satellite-delivered programming.

Texas Education Agency Programming Broadcast over the T-STAR Network

EYE ON EARTH—This monthly series, now in its fifth year, provides Texas teachers with information and resources to meet the Texas Essential Knowledge and Skills in science and social studies by using the natural environment as an integrating concept.

EXPLORING TEXAS—Through topics such as monitoring and caring for our water; the complex nature of healthy Texas ecosystems; and the harsh and diverse Texas landscape, this series presents teachers with curriculum ideas and video examples of projects that can be used in elementary and middle school classrooms.

BLUEBONNET AWARDS—This annual program highlights the Texas Library Association's award for children's literature, as voted on by Texas elementary students.

TEACHERS TALKING WITH TEACHERS—This nine-part series takes an in-depth look at how some teachers have successfully integrated technology into elementary and middle school classes, showing strategies for using technology to viewers to support their own lessons.

THE PARENTAL INVOLVEMENT CONFERENCE—Parental involvement plays a key part in any student's success. This program gives a preview of events planned for this popular annual conference.

ENERGIZE YOUR CLASS—This six-part series discusses the political, historical, environmental and economic impact of our energy uses; giving teachers access to educational programs in the social science area that deal with energy.

Star Schools

The federal Star Schools program, funded through competitive grants, is intended to encourage improved instruction in mathematics, science and foreign languages. The focus of the program is to use telecommunications to serve traditionally underserved populations, including the disadvantaged, illiterate, and limited-English proficient as well as individuals with disabilities. The Star Schools Program was first authorized in 1988 and was reauthorized most recently under Title III of the Improving America's Schools Act.

To provide support for distance learning, Texas is a partner in the United Star Distance Learning Consortium and the Satellite Education Resources Consortium, both of which received funding for the recent five-year Star Schools cycle.

Satellite Education Resources Consortium

The *Next Generation* Star Schools project from Satellite Education Resources Consortium (SERC) uses a variety of technologies. The most exciting example is the creation of curriculum-based, multimedia materials in science and mathematics, which will be made available on demand by the digitization of extensive video archives held within existing public television inventory. This will allow teachers in Texas to have immediate access to resources from a host of exemplary programs such as the *CPB/Annenberg Math and Science Project.*

SERC will also develop new distance learning courses for middle schools students in French and reading across the curriculum, offering them first through traditional technologies and then through the digital, on-demand service. Finally, as part of its Star Schools project to enrich its technological offerings, SERC will develop an Internet-based course in Calculus/AP Calculus for students.

Our state's membership in SERC provides professional development programs to Texas public schools at no cost and student courses at reduced tuition fees.

United Star Distance Learning Consortium

The United Star Distance Learning Consortium, (USDLC) Inc. includes partners in Texas, Florida, Illinois, New Mexico and North Carolina and provides a rich array of programming delivered through Internet, satellite and videoconferencing.

The USDLC's Star Schools programming focuses on an engaged learning model. It emphasizes the areas of early reading; middle school mathematics proficiency; literacy for the deaf; adult literacy; technology training for teachers; and online, asynchronous staff development via the Internet for teachers of middle school Algebra, elementary reading, adult literacy and those in alternative schools. The project uses a mix of converging technologies, including satellite, CD-ROM and Web-based tools to connect students and teachers across the country. Texas' membership in the USDLC provides staff development programs and student courses at reduced cost to Texas public schools through StarNet, a USDLC partner.

StarNet

StarNet Distance Learning Network is a national distance learning undertaking of the United Star Distance Learning Consortium, (USDLC) Inc. As successor to the TI-IN Network, StarNet is now a not-for-profit educators' network offering staff development, student enrichment, and for-credit student courses across Texas and 39 other states. Managed by educators, for educators, StarNet programming and services originate from Education Service Center Region 20 and are available to Texas schools at a substantial discount by virtue of Texas' membership in the USDLC.

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Educator Preparation and Development

Technology, telecommunications and, most important of all, ongoing staff development are the keys to improving student learning in this and the next century.

Ian Jukes, associate director
Thornburg Center for Professional Development

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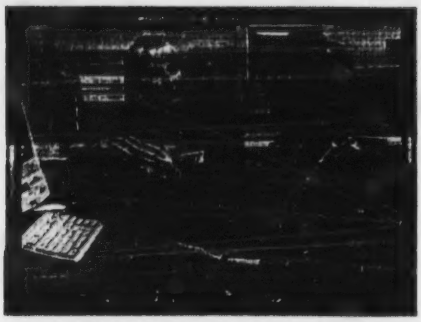
The Vision

Imagine a district...



...where every educator—regardless of subject, experience, or district location, size or wealth—can get hands-on training instantaneously, when or where he or she needs it; interact with a virtual community of professional colleagues; and have access to financial data and student performance information as well as the analytical tools to use them effectively.

The Reality

The Bryan Independent School District traditionally trained about 22 of their 900 teachers annually in the use of technology. However, all has changed. Using 18 training modules created within the district, teachers receive consistent training that includes instruction and creation of products such as lesson plans or presentations. Bryan's modules are on the Web and are downloaded by participants. Updates and additions are instantly available. Getting Internet connections into the classrooms has stimulated teacher interest and there is a high demand for training. In one year, 161 teachers have been trained. As incentives, teachers receive laptop computers and access to the Internet from home. The project, which started with four districts, has grown into an 11-district consortium. This consortium includes noncontiguous geographic participants, who are able to share resources regardless of time or place.

Executive Summary

Research on successful professional development reveals that all members of an institution must share a common understanding of the goals and knowledge base in order for the institution to improve. As a result, the *Long-Range Plan for Technology, 1996-2010* addresses the staff development needs not only of teachers, but also of all the members of the professional education community. At the public school level, this includes teachers, administrators, curriculum coordinators, counselors, librarians and other educational professionals. Funding and incentives are required to re-tool a statewide workforce of more than 250,000 professionals. The plan also addresses the training needs of faculty at the university level, particularly those involved in preservice educator preparation.

The *Long-Range Plan for Technology* states that all educators need paid professional leave time for training in the integration of technologies into teaching and learning, instructional management, professional development and administration. The plan also recommends that school districts devote at least 30% of their Technology Allotment funds to professional development. Professional development must be available on an ongoing, "just in time" basis, that is, it must be accessible when educators need it at a single point in time rather than "just in case" they need it in the future. A variety of technology tools can be used to deliver professional development. These tools allow educators to identify their individual staff development needs and acquire the skills they desire in incremental steps that best meet those individual needs. Technology also makes it possible for professional development opportunities to be offered in many ways, at many times.

Many professional development opportunities exist for Texas preservice and inservice educators to enhance their skills in the use of technology as an instructional tool. Colleges and universities offer courses related to the teaching and learning of computers and other associated electronic tools, while districts, consortia of districts, and education service centers frequently host summer and weekend educator preparation symposia. Many professional organizations provide workshops and training sessions on the integration of technology at regional, state and national conferences.

There are statewide Curriculum Centers that provide resources for the implementation of the Texas Essential Knowledge and Skills (TEKS) in various foundation and enrichment areas. The Centers for Educator Development (CEDs) focus on staff development that helps educators become familiar with the new TEKS in the core content areas and incorporate them effectively into instruction. CEDs were established in the areas of mathematics, science, reading and language arts, and social studies. Additional statewide Curriculum Centers have now been developed in several of the enrichment areas.

Local districts offer staff development opportunities that include the use of technology. In addition, Technology Preview Centers and Training Programs at regional education service centers provide staff development and technical assistance for districts in the area of educational technology. Through the support of the Preview Centers, district personnel receive hands-on experience and an orientation to state-of-the-art technologies for use in the classroom. They also receive training and staff development on the integration of technology into the teaching and learning process. Technology institutes, summer camps, and other staff development opportunities are available through the education service centers.

Many of the state technology initiatives have special awareness and training sessions. Not only has there been training on how to implement the initiatives but also there has been training using the initiatives as vehicles for professional development. For example, the Texas Education Agency broadcasts many programs over the Texas School Telecommunications Access Resource (T-STAR) Network that focus on the use of technology in education. These programs, delivered to Texas schools, are valuable resources for professional development. The Texas Education Telecommunications Network (TETN) uses two-way videoconferencing as another avenue for sharing information, working with others across the state, and providing professional development.

Many of the resources and opportunities described in this section were in their formative and developmental stages two years ago. Since that time, these resources have improved and matured. High-quality professional development is available to multiple audiences through a variety of means. As these professional development resources continue to grow, the potential for a highly trained, re-tooled educator workforce is great.

Priorities for Professional Development

The Texas Essential Knowledge and Skills (TEKS) represent the first comprehensive revision of the curriculum since the Essential Elements were adopted in 1984 and implemented in the 1985-1986 school year. The TEKS provide standards for what students should know and be able to do in all curriculum areas from kindergarten through Grade 12. For the first time, there are also TEKS that define what students should know and be able to do with computers and related technology. Replacing the Essential Elements with the Texas Essential Knowledge and Skills requires significant preparation of teachers and other educators who are expected to raise standards, revise lesson plans, use technology, and make other adjustments.

The State Board for Educator Certification (SBEC) has outlined proficiencies for educators that include technology skills. The new Professional Development and Appraisal System (PDAS) requires training on how to use the system and identifies professional development needs through the appraisal process.

Additional priorities for professional development include Library Standards developed by the State Library and Archives Commission in consultation with the State Board of Education. The electronic resources that are now available require expertise in accessing and using those resources. The increasing use of technology for instruction and administration also contributes to the ongoing demand for professional development.

Technology is a means to enhance student learning. It is an essential instructional arrow in a quiver of instructional strategies. But it is still the teacher and the lesson that are the heart and soul of the educational process. The computer, the laser disk, access to the Internet or the video cameral are not the answer to improving education. It will be what teachers do with these sophisticated pieces of equipment that will shape the face of education in the 21st century.

David Thornburg
Thornburg Center for Professional Development

Educator Resources

Statewide Curriculum Centers

To help administrators and teachers become familiar with and implement the TEKS, statewide Centers for Educator Development (CEDs), which focus on the foundation curriculum areas, and statewide Curriculum Centers, which focus on some of the enrichment curriculum areas, have been established. These centers develop and disseminate supporting materials and training. For instance, TEKS for Leaders, a seminar for district and campus administrators, provides an in-depth introduction to the TEKS and methods for planning to teach them.

Foundation Curriculum Centers

The CEDs in social studies and reading and language arts were established with support from the Texas Education Agency through the U.S. Department of Education Goals 2000 program. The Social Studies CED was developed to provide a statewide coordinated system of ongoing education and professional development in social studies for educators at all levels. The mission of the Social Studies Center is to provide practicing and preservice educators opportunities to:

- gain a thorough knowledge of social studies as delineated in the TEKS
- develop appropriate curriculum
- access high-quality teaching models
- integrate technology into instruction
- participate in a system of professional development through appropriate and effective means

The Texas Center for Reading and Language Arts was established to assist K-12 educators in improving the reading and language arts skills of Texas children. The Center's goals are:

- to provide teachers and future teachers with a thorough knowledge of the instructional principles underlying the English Language Arts TEKS
- to increase educators' access to high-quality instructional models for all students
- to establish a coordinated system of teacher education and professional development in literacy instruction

The Texas Statewide Systemic Initiative (SSI) was established with support from the National Science Foundation and the Texas Education Agency to improve educator development in science and mathematics.

Selected to serve as the Mathematics and Science Center for Educator Development, The Texas SSI provides local communities with tools to implement contemporary, intellectually rigorous and engaging mathematics and science K-12 curriculum for all children. Local communities receive assistance in:

- implementing the mathematics and science TEKS
- strengthening mathematics and science teacher professional development
- disseminating high-quality mathematics and science materials to parents
- strengthening the mathematics and science preparation of preservice elementary teachers
- strengthening community involvement

The Texas SSI, as well as the Reading and Language Arts Center, are housed at the University of Texas at Austin, while the Social Studies Center is housed at Texas A&M University and Education Service Center, Region VI in Huntsville. Each of these Centers has resources available or in development that focus on the use of technology in the foundation areas and utilize technology as a dissemination tool.

The Social Studies CED conducted four days of technology training for its 100 trainers. Agendas included hands-on instruction in computer lab settings on using brainstorming software, developing slide shows, using databases and spreadsheets, and becoming aware of other application tools. Participants learned how to use the software to align with the Social Studies TEKS. Copies of training materials are on the SSCED website. In addition, SSCED developed a list of CD-ROMs that correlate with the Social Studies TEKS and is available on the SSCED website. The SSCED is developing a list of five or six websites appropriate for each grade level and course in the Social Studies TEKS.

The Reading Center uses technology in professional development presentations to highlight its website and the CD-ROM that is in development. A proposed brochure planned for publication during the 1998-1999 school year will provide suggestions for integrating technology into Reading and Language

Arts. Professional development was accomplished through the *TEKS Talk* series, *TIPS* educator news program, and other T-STAR broadcast programs as well as Texas Educational Telecommunications Network (TETN) sessions for TEKS and for the ESC dyslexia contacts and reading liaisons.

Like the other centers, the Mathematics Center recognizes that professional development for teachers is a critical component of implementing the TEKS. The SSI developed a Mathematics Toolkit, which is an Internet resource containing a wealth of activities and resources for teachers and administrators that clarify and provide information about teaching the TEKS. A print version is also available.

Additional professional development training and materials for mathematics were developed through the TEXTEAMS project funded by the federal Dwight D. Eisenhower Mathematics and Science Education Program of the U.S. Department of Education. This project produced professional development modules for all levels of mathematics. Also, professional development institutes were developed for Grades 3-5, Grades 6-8, Algebra I, and Geometry. TEXTEAMS professional development will be coordinated through the 20 regional education service centers. The ESCs will also be instrumental in providing other professional development regarding implementation of the TEKS.

The Science Center for Educator Development provides TEXTEAMS training on the science TEKS to science supervisors, education service center representatives, and master teachers in a trainer-of-trainer model. The Center has also developed a Science Toolkit; a technology-based program that assists school districts with the development of a local curriculum based on the TEKS. The Toolkit's framework, available on the World Wide Web and CD-ROM, provides schools with access to safety regulations, equipment recommendations, certification requirements, and other components of a quality science program.

Enrichment Curriculum Centers

The Languages Other Than English (LOTE) CED is located at the Southwest Educational Development Lab in Austin. This center has distributed a bibliography with references to technology integration via its *Professional Development Modules* and *A Texas Framework for Languages Other Than English*. The LOTE CED module trainers, a group of about 45 LOTE educators, have participated in TETN sessions to receive training on how to use the professional development modules. In addition, the LOTE staff at TEA has kept the TEKS Liaisons at the ESCs informed of TEKS implementation efforts.

A statewide center for TEKS implementation in health education has been established at Texas A&M University. The Center is developing a video series and instructional manual that districts will be able to use as a part of their health education instruction. The video series will showcase examples of Texas school districts using TEKS as a curriculum framework. The instructional manual will be a collection of detailed instructional activities designed to correlate to the TEKS. These materials will be complete in August 1999 and ready for classroom use in September 1999. Also, the video series and instructional manual are designed for use at regional education service centers as a TEKS training component and at universities as a teaching tool in preservice programs.

The Texas Center for Educational Technology (TCET) at the University of North Texas in Denton serves as the statewide curriculum center for Technology Applications. TCET developed the Sharing Technology Applications Resources with Teachers (START) package to provide resources for educator preparation and development. Education service centers provided training in the use of the START video, CD-ROM, START website, and print materials as the START package was distributed statewide. Additional staff development sessions on START were provided via Texas School Telecommunications Access Resource (T-STAR) and TETN. A START *Curriculum Connections* guide and other resources are being developed to help educators integrate technology into all curriculum areas.

The Division of Career and Technology Education at TEA contracts with curriculum centers at five Texas universities. These curriculum centers have assisted in implementing the TEKS by developing and disseminating curriculum guides and other materials to educators throughout the state in paper and electronic formats, providing extensive professional development opportunities, and establishing websites. Career and Technology curriculum centers and the disciplines they serve include:

- Instructional Materials Service at Texas A&M at College Station - agricultural science and trade and industrial education
- Texas A&M at Commerce - health science and technology education
- University of Houston - business education
- University of Texas at Austin - marketing education
- Home Economics Curriculum Center at Texas Tech University - home economics and career investigation

Internet links to the Career and Technology Education curriculum centers are available at: http://www.tea.state.tx.us/Cate/cur_ctrs.htm.

CEDs work together to coordinate the development of products and the integration of technology in their staff development programs. For the latest curriculum information and resources developed by the statewide Curriculum Centers visit: http://www.tea.state.tx.us/resources.

Centers for Professional Development and Technology

Centers for Professional Development and Technology (CPDTs) were established through legislation that authorized the State Board for Educator Certification to develop the process for the creation of professional development centers for teachers. The Board was also directed to make grants to the centers to support their programs.

The Centers for Professional Development and Technology were established as educator preparation institutions that provide field-based experiences in settings that integrate technology into instruction. The centers provide technology training to classroom teachers, preservice teachers, university faculty, and school administrators. There are currently 36 centers statewide. Twelve additional institutions are in the process of achieving full center status for a projected total of 48 centers by 2001.

As the Technology Applications TEKS are implemented, the emphasis on integration of technology into all curriculum areas will increase. All educators will need technology knowledge and skills to meet the changing needs of students as we enter the 21st century. The CPDTs provide the field-based experiences and examples of integrating technology into instruction as outlined in the *Long-Range Plan for Technology, 1996-2010.*

In the centers, teachers and students use technology in a variety of ways. All centers report that their efforts have assisted school districts in moving more rapidly into the use of technology. Teachers primarily use technology for lesson planning, record keeping, developing instructional materials, accessing information and communication. Students primarily use technology to develop special reports and presentations in a variety of subject areas, to communicate with students in other parts of the world, and to access information databases. Both teachers and students use technology in a wide variety of ways and subject areas.

The group was even more eager to learn with technology. They were especially excited about coming up with their own things to do.

CPDT Mentor teacher

A series of reports from the Texas Center for Educational Technology's *Images* publication feature the CPDTs, highlighting Texas educators who each possess several common characteristics:

- a willingness to take risks
- a drive to see the potential of all students realized
- a belief in the power of educational technology

Texas teachers and administrators are developing new ideas about teaching and learning using technology. The Lower Valley CPDT is featured in Issue #22 of *Images*. CPDTs have the goal of expanding each child's intellectual capital by bringing multimedia global information into each classroom.

Some examples of CPDT activities are:

- The Lower Valley CPDT is a collaborative consisting of the University of Texas at Brownsville and Texas Southmost College (UTB/TSC), Brownsville ISD, and San Benito CISD. The March 1993 agreement established four professional development model schools: three elementary schools in Brownsville ISD—Yturria, Del Castillo, and Russell; and one middle school in San Benito ISD, Berta Cabaza. Rivera High School in Brownsville ISD is scheduled to become the first high school model campus.

Two university faculty members were assigned to work with the four campuses to collaborate in developing extensive field-based teacher preparation.

- The Baylor University Center for Professional Development and Technology (CPDT), named The PARTNERS Project, is a consortium of 8 school districts, 3 colleges, and 2 educational service centers. The Baylor CPDT serves as a hub for an extensive videoconferencing network. The PARTNERS Project uses the network to provide field experiences in teacher development, facilitate teacher collaboration and engaged learning.

We are providing things that engage students and teachers in the learning process...If you're reading about rockets, you're not nearly as engaged in learning as when you are talking to someone who actually builds them.

Chris Jones
technology coordinator

- Harker Heights Elementary School in Killeen ISD is a participant in the PARTNERS Project. One of the benefits of videoconferencing is the sharing of cultures and the opportunity to gain a better understanding of the way of life in other areas. Because of its high population of military families stationed at nearby Ft. Hood, Harker Heights students and teachers share a unique culture. Harker Heights has had students speaking 49 different languages who have lived in many different places throughout the world. They have much to offer and videoconferencing enables effective sharing.

More information on the Centers for Professional Development and Technology is available at http://www.sbec.state.tx.us.

Technology and the Professional Development and Appraisal System

The State of Texas recently developed a new teacher appraisal system. The new system is called the Professional Development and Appraisal System (PDAS). The title is indicative of the goal of the system with appraisal being just one part of the system. The primary goal of the new system is to enhance student learning through the continual professional development of teachers. The use of technology will make this process much more efficient and effective in shifting the paradigm to more meaningful staff development for teachers.

To support this system, a software program was developed for appraisers to use in the evaluation of a teacher. Information about the evaluation, as well as any cumulative data regarding the teacher's performance, is entered into the computer. The use of technology will help appraisers evaluate teachers accurately and comprehensively and will facilitate record keeping. Implementation of the new system began during the 1997-1998 school year.

Among other criteria, the teacher is also evaluated on the use of available technology. The TEA encourages the use of technology and is using technology in the implementation of the PDAS. The system should provide encouragement for teachers to use technology in their instructional programs.

Education service centers created a professional development framework, which addresses the 51 criteria in the PDAS. Various staff development programs support specific criteria. One staff development activity might cover ten different criteria. The ESCs identify which criteria are included in a particular staff development activity so that teachers can determine which staff development activity addresses an area in which they desire help.

This framework has also been linked to the scoring process. As a result, a principal who is evaluating a teacher whose performance is weak on a specific criterion, can quickly and easily determine what professional development addressing that criterion is available from the local service center by accessing the information electronically. The developers of the PDAS envision the expansion of this professional development framework to include local district staff development, other organization staff development, university staff development, and professional development services offered by private entrepreneurs. This framework would provide a wide variety of opportunities for a teacher to enhance their teaching skills.

How can we NOT expect teachers to demonstrate technology competencies—it's what we expect of eighth graders. It's no longer a choice.

Pam Fite, technology coordinator
Mt. Pleasant ISD

Library Standards

The new standards for school libraries created a need for additional professional development activities for school librarians. The Texas Education Agency developed and aired a five-part distance learning series, *Library Tools*, through T-STAR to assist school librarians in interpreting and implementing the new standards. In July 1998, a videoconference was held over TETN to provide additional professional development on the implementation of the standards and methods of evaluating school library programs in relation to the new standards. Over 200 school librarians attended the two-day professional development session.

> *They [the librarians] loved the TETN format. The location allowed more to attend. The location allowed more informality. Enjoyed the camaraderie afforded by meeting at our own region. Variety of presentation materials made a big hit.*
>
> Ruth Dahlstrom
> Region III ESC

South Central Regional Technology in Education Consortium

The South Central Regional Technology in Education Consortium (SCR*TEC) is one of six regional technology consortia established by the U.S. Department of Education through the Office of Educational Research and Improvement to accelerate school reform initiatives in America's schools through the integration of advanced technologies into the instructional process. In particular, this initiative focuses on the successful integration of technology into K-12 classrooms, library media centers, literacy initiatives, preservice education and other educational settings. The South Central Regional Technology in Education Consortium serves the states of Kansas, Missouri, Nebraska, Oklahoma and Texas. State operations for Texas are conducted out of Texas A&M University, College Station, College of Education. The SCR*TEC offers professional development through Summer Intensives that offer:

- a variety of opportunities for hands-on web development
- instructional applications of the Internet
- the implementation of Technology Applications in the classroom
- distance learning opportunities
- presentations on content-area projects

Additional professional development resources are available at http://www.coe.tamu.edu/~texas and http://scrtec.org.

Southwest Educational Development Lab

The Southwest Educational Development Lab (SEDL) is the regional education laboratory serving Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. SEDL conducts applied research and development, delivers training, and provides technical assistance to K-12 educators and decision-makers. SEDL also serves as the Languages Other Than English Center for Educator Development. The Technology Assistance Program (TAP) helps schools integrate technology into the K-12 curriculum in order to support constructivist learning environments. Resources are available at http://www.sedl.org.

Support for Texas Academic Renewal Center

The Support for Texas Academic Renewal (STAR) Center was established in April 1996. Funded by the U.S. Department of Education, the Intercultural Development Research Association heads the STAR Center in partnership with RMC Research Corporation and the Charles A. Dana Center at the University of Texas at Austin.

The STAR Center established the Excellence and Equity through Technology Network (EETNet) in the fall of 1997. This network consists of Title I schoolwide campuses committed to increasing achievement for all students through innovative instruction that is technology enhanced. The STAR Center conducts EETNet training institutes where campus teams collaborate and receive intensive professional development. Activities include an online needs assessment using the *Learning with Technology Profile* developed by the North Central Regional Technology Education Consortium (NCRTEC), review of the new Texas Essential Knowledge and Skills for technology and core subjects, and hands-on introduction to cutting edge instructional technologies. The Center also offers demonstrations and training for the online *Teacher's Guide to the Internet*. Additional information and resources are available on the Center's website at http://www.starcenter.org.

Technology Preview Centers and Training Programs

To provide school districts with educational technology services that will enhance efficiency, effectiveness, and the performance of students, teachers, and educators, Technology Preview Centers and Training Programs were established at all 20 education service centers throughout the state. Education service centers provide planning, consultation, professional development and technical assistance in response to district needs and in support of the *Long-Range Plan for Technology, 1996-2010*. During FY 1997, technology staff development was provided to 85,734 educators. With the adoption of the TEKS, increased implementation of technology, and training requirements of TIF and TIE grants, technology staff development provided by ESCs increased dramatically. During FY 1998, technology staff development was delivered to 97,494* educators through the education service centers.

Information is shared throughout each region in staff development catalogs provided to districts and through ESC websites. Many centers offer online registration for staff development. The Education Service Center section of this report presents an overview of services provided by each center. Additional information and links to each ESC are available at http://www.tea.state.tx.us/technology.

We just got back from a workshop at the ESC and are anxious to put into practice what we learned. We will soon...begin instructing our teachers and students on how to utilize TLC.

Linda Hurt
College Station ISD

Texas Center for Educational Technology

Essential to successful educator preparation and development is the timely sharing of results of educational technology research and information about what works in the classroom, from a practical viewpoint. The goal of the Texas Center for Educational Technology (TCET) is to serve as a K-12 technology and educational research and development resource that disseminates research-based information to the district, school, and classroom level.

TCET produces many research-based publications and products for educator development each year. These products are made available to all Texas school districts and teacher education programs through the regional education service centers, online services via Internet and webpages, T-STAR broadcasts, and a wide variety of regional and local conferences and workshops.

To assist educators in implementing the Technology Applications Texas Essential Knowledge and Skills, TCET, with support from the Texas Education Agency, developed the Sharing Technology Applications Resources with Teachers (START) project. TCET collaborated with the ESCs, Centers for Educator Development, Centers for Professional Development and Technology, regional laboratories and Texas school districts in preparing materials to assist curriculum directors, technology directors, principals, librarians and teachers with the implementation of this curriculum and TEKS. These Sharing Technology Applications Resources with Teachers materials are described in detail in the Teaching and Learning section of this report. The portion of TCET's website devoted to the START project is very popular with Texas educators.

START materials assist educators in implementing the Technology Applications TEKS.

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*This number is a duplicate count, with an individual being counted for each training event attended.

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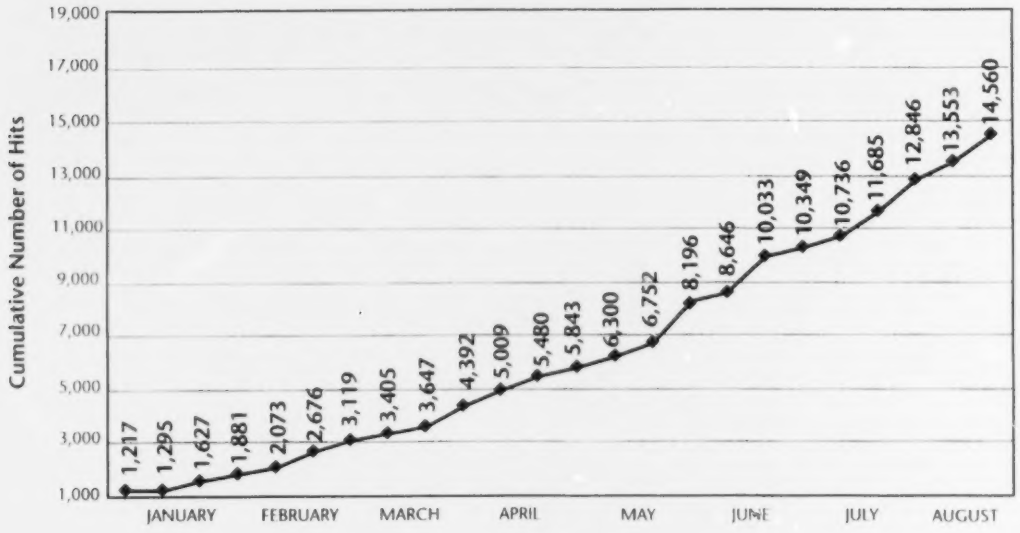
START WEBSITE HITS



Average Hits per day since January 7, 1998 = 55

TCET holds an annual symposium that gives educators an opportunity to hear from technology leaders, participate in peer-led sessions and workshops, and network with other professionals and technology leaders. This symposium provides a focused environment where professional development occurs in both small groups and one-on-one formats. Since its inception five years ago, over 2,500 educators have participated in the symposia.

Additional information about TCET is available at http://www.tcet.unt.edu.

Texas Education Network

The Texas Education Network (TENET) provided a number of staff development opportunities for teachers, administrators and professional personnel. Over the past two years, more than 600 participants received training. The TENET Master Trainers program provided multiple opportunities for this cadre of educators to become knowledgeable in the use of TENET and the Internet. These educators have been key trainers in their districts and regions across the state. TENET also provided online support and a customer help desk for its users. In addition, participants in special projects received both online and telephone support.

As a part of the TENET project, the Teachers Accessing Telecommunications Technology Institute studied the use of telecommunications in classrooms by providing access, staff development and support for teachers who were novices in the use of computers and telecommunications. Twenty-two teachers took part in the institute. Each teacher's school received a computer for that teacher's use. The district supplied a telephone line in the teacher's classroom and release time for staff development.

The Institute offered several findings. Most of the teachers became the technology "expert" at their campus and had the opportunity to offer staff development on their campus and within their district. All participants created a newsletter and a slide show to use with their community detailing the need for integrating technology into the classroom. At the end of the project, all participants described themselves as having a high degree of expertise as well as feeling comfortable about the use of technology in their classroom.

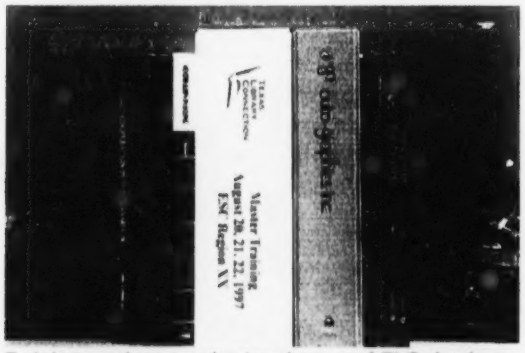
Another institute provided by TENET was the Emerging Technologies Institute which explored the issues involved in what some believe to be the number one factor which prevents teachers from integrating technology into the classroom - access to the technology. At the conclusion of the institute,

a survey indicated that the key issues that should be addressed as teachers seek to integrate technology into the classroom include: technical issues, educational issues, professional productivity, curriculum integration, and grant writing.

Texas Library Connection

The Texas Library Connection provides instructional materials in the form of current, relevant electronic information resources. One of the elements for success identified in the Evaluation of the Texas Library Connection Full-text Pilot Project was professional development in the use of the electronic databases and in the integration of the databases into the curriculum. Professional development for school librarians in that area continues to be a top priority for the Texas Education Agency.

During the 1996-1997 school year, the Texas Library Connection staff was responsible for producing a series of television programs that detailed the usage of the TLC databases for broadcast over the T-STAR Network. Various programs in the series focused on setting up, searching, and evaluating the searches of the databases. Education service centers and school librarians were urged to copy those broadcasts to use at point-of-need. Copies of the broadcasts were also distributed at a three-day training session held at Education Service Center, Region 20 in San Antonio for ESC personnel. That training session emphasized best methods of professional development for school librarians in the use of the TLC databases and their integration into the curriculum. Videoconferences over TETN were used to discuss training issues and to share professional development techniques among the education service center staff responsible for TLC training with their regions.



Training sessions emphasize the use of TLC databases and their integration into curriculum.

During the 1997-1998 school year, professional development for school librarians in the use of TLC was again a major emphasis of the initiative. A series of sessions was held at both the Texas Computer Education Association (TCEA) Conference in February 1998, and the Texas Library Association (TLA) Annual Conference in April 1998. Both series of programs were well attended, impacting approximately 150 librarians at the TCEA Conference and 300 librarians at the TLA Conference. Videoconferencing over TETN again focused on support of the education service centers' staff responsible for TLC training within their regions. In August 1998, a face-to-face, three-day training session was held for education service center staff where the focus was on enhancements to databases.

The TLC has given a tremendous boost to our instructional efforts.

Amelia Gonzalez
Zapata ISD

Texas School Telecommunications Access Resource Information and Training Center

The Texas School Telecommunications Access Resource (T-STAR) Information and Training Center provides training, information, and support to Texas public school educators in the utilization of telecommunications and distance learning. The T-STAR Information and Training Center is a collaborative partnership between the Texas Education Agency and Region 10 Education Service Center in Richardson, Texas.

The purpose of the Information and Training Center is to:

- collect and disseminate information on video programming pertinent to Texas K-12 public school educators and technical information related to the use of T-STAR equipment
- develop and deliver training on the utilization of telecommunications programming and technical training on the use of T-STAR equipment
- provide advice to the Agency for improvement in the development and use of T-STAR
- provide ongoing support to users of T-STAR across the state

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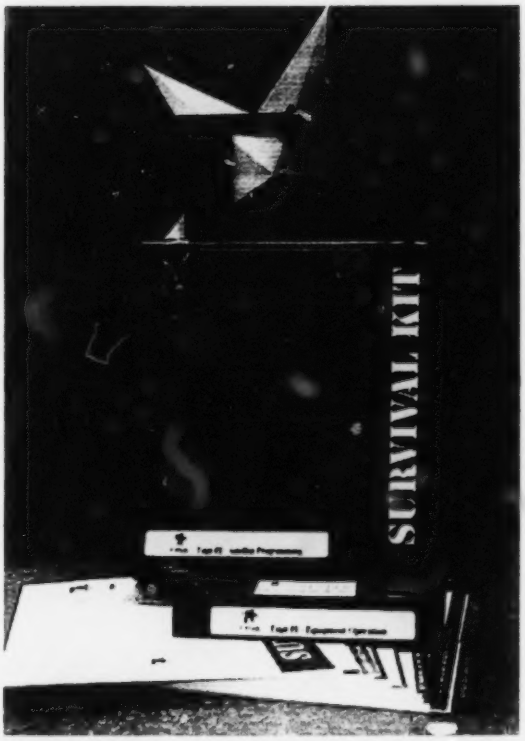
I would certainly encourage all school administrators to give their staff as much training and as much access to T-STAR as they can because the variety of programming is tremendous.

Lewis Rogers, superintendent
Sierra Blanca ISD

The T-STAR Information and Training Center provides several publications each year to Texas campuses that include information about distance learning opportunities such as for-credit courses, curriculum enhancement programming and electronic field trips, and professional development teleconferences from programming providers across the country. These publications also share strategies for the effective use of distance learning programs in the classroom and give the broadcast schedule and descriptions of programming broadcast by the Texas Education Agency.

A *T-STAR Survival Kit* was distributed at the end of the 1997-1998 school year to every T-STAR Contact at each ESC and to the T-STAR technical support person in every school district. This new *Survival Kit* gives step-by-step instructions for positioning the satellite dish, selecting the desired program, and bringing it into the classroom. Diagnostic and trouble-shooting procedures are included, along with a section of strategies for integrating programming into the curricula. Step-by-step procedures are provided for normal operation, for positioning the satellite dish, and for diagnostics. Companion VHS tapes describe the capabilities of the T-STAR system, show examples of the various types of available programming, and illustrate the same step-by-step instructions for equipment operation and trouble-shooting reflected in the print materials of the kit. A separate tape deals with distance learning programming integration strategies.

T-STAR also maintains a toll-free hotline for those situations in which immediate conversations and help are required. The T-STAR Hotline provides educators and operators across the state with information about satellite programming and services and guidance regarding effective utilization, as well as assistance with technical questions.



The *T-STAR Survival Kit* contains step-by-step instructions, trouble-shooting procedures, and curriculum integration strategies.

To date, T-STAR has hosted two annual T-STAR distance learning conferences for the purpose of motivating and training school district personnel in the integration of T-STAR-delivered programming into the curriculum. The conference includes curriculum-based sessions, presentations from satellite-delivered programming providers, and training on methodologies for the effective utilization of satellite-delivered programming into specific curriculum areas. Participants have included superintendents, principals, curriculum coordinators, guidance counselors, librarians, teachers and the designated T-STAR Site Manager. Participants from the regional education service centers included technology and curriculum coordinators and the T-STAR Contacts.

The focus of the first conference was to create a statewide T-STAR User Group and to spread awareness of distance learning opportunities

available via satellite. The T-STAR Information and Training Center identified district and campus personnel in each ESC service region who are effectively using T-STAR satellite technology to serve as models and leaders in the field. They work with the ESC in their region to form T-STAR User Groups that expand current T-STAR activities and support to schools in their region. Together, they form a statewide T-STAR User Group. T-STAR's first distance learning conference helped bridge the gap between curriculum-area personnel and technology experts. Curriculum staff became more aware of the opportunities that satellite technology offers to schools and established, or deepened, their relationship with the technology staffs in their district or region who can assist them.

The second conference focused on for-credit distance learning courses and their providers. Approximately 100 ESC facilitators and school representatives attended the conference and learned how different schools in Texas successfully use satellite technology for their students. The Texas Center for Educational Technology presented a recently completed study on the effectiveness of for-credit distance learning technology and highlighted the components identified by the study as being critical to implementation of a successful distance learning program. Campus and district staff from Texas schools who are currently using satellite-delivered for-credit courses shared their experiences and expertise. Conference attendees were introduced to many concepts and ideas for effectively implementing satellite technology into their curriculum.

More information about T-STAR and satellite-delivered distance learning is available on the T-STAR website at http//:www.t-star.org.

Additional Professional Development Resources

Many professional organizations provide staff development opportunities at conferences and workshops around the state. Several professional organizations provide technology institutes for teachers and administrators, campus and district teams, and other stakeholders. Community colleges and universities offer sessions that assist certified staff as well as preservice teachers in the use of technology to teach and enhance course content. In addition, many businesses provide staff development in the area of educational technology.

In 1997, a new feature of the Administrators' Midwinter Conference on Education allowed administrators to participate in an event called Tech Tools. Throughout the day, administrators could observe and participate in demonstrations and presentations showcasing the application of technology in various instructional settings. This conference feature was so well received that attendance doubled for the 1998 Tech Tools. The focus in 1998 was the Commissioner's Public Access Initiative. Access to data for decision-making through a variety of technologies was featured. Administrators participated in demonstrations that highlighted the TEA website, the Texas Library Connection and the T-STAR satellite system. At the Texas Computer Education Association (TCEA) Conference, the Texas Education Agency presents a strand of professional development sessions on topics such as curriculum developments, technology resources and demonstration sites, and telecommunications.

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Integration of Technology Into Educator Preparation and Development

Technology has changed my whole way of teaching.

Joanna Duncan, Biology teacher
Linden-Kildare High School

For quite a number of years, districts have integrated technology into their staff development programs. As technology is introduced into the educational setting, teachers and administrators need training on the technology itself and how to use the technology in instruction and administration. Increased connectivity provides access to information resources and staff development opportunities "just in time" for use by educators. With the explosion of the Internet and fast-paced changes in technology, the demand for staff development in these areas has increased. Staff development is also a critical component of campus and district improvement plans. As districts plan for technology staff development, many seek examples of quality programs that can be adapted to local needs.

Teachers were required to take 40 hours of training...After the first ten hours, teachers were issued a ...computer and a color printer. There was a lot of interest, and we ran out of computers before the year was over. Of approximately 320 teachers, about 222 participated in Phase1 on a voluntary basis. The committee decided that training should be required instead of voluntary. This really came from teachers who said they couldn't believe how technology had revolutionized their classrooms...The technology committee has determined that the next phase will be helping teachers integrate the Technology Applications TEKS into the curriculum.

Pam Fite, technology coordinator
Mt. Pleasant ISD

Projects for Educational Technology and the Technology Integration in Education initiative offer monetary resources to districts through competitive grant programs to develop and expand technology staff development and training to educators. The results of these grants are then shared with others across the state through electronic as well as traditional methods.

Projects for Educational Technology

Projects for Educational Technology (PETs) are technology demonstration sites authorized by the Texas Education Code. The purpose is to establish pilot sites to examine innovative uses for technology. The overall results of the Projects for Educational Technology from 1996-1998, as they relate to Educator Preparation and Development, are that districts were able to:

- plan for implementation and delivery of technology staff development
- align technology staff development processes with the overall goals for technology use and/or district improvement plan
- deliver technology staff development to a variety of audiences and/or with multiple levels of skill development
- deliver staff development which focuses on a variety of technologies
- assess technology staff development processes
- provide access to existing staff development models for implementation by other districts.

From 1996-1998, $2 million in state funds were awarded to school districts for the establishment of technology demonstration sites. In 1996, twenty-one demonstration sites were established. The purpose of these grants was to allow districts or collaboratives opportunities to conduct comprehensive technology planning or to implement innovative technology-based programs. Sixteen sites were awarded planning grants, the remaining five grant sites focused on the implementation of technology programs in schools.

Districts receiving planning grants engaged in a variety of activities that allowed district personnel to develop strategies for utilization of technology to increase the effectiveness of student learning, to improve instructional management and to provide appropriate technology staff development. Many of the grants provided technology training opportunities for teachers and administrators.

For example, the purpose of Alvin ISD's planning grant was to explore staff development for the integration of technology into the curriculum. The PETs project team researched available technologies to determine the feasibility of implementing these technologies into classrooms. Alvin brought in theorists and practitioners, made site visits, and looked at models for staff development and curriculum integration to assist in the development of the district technology plan.

Five implementation grants totaling $1.2 million were awarded for the implementation of demonstration programs focusing on staff development, integration of technology into the curriculum, and/or library media services. Professional development was a critical component in the projects. Model sites shared successes and lessons learned through reports, conference presentations, T-STAR programs, videoconferencing sessions, and school and TEA websites. As a result of the grant awards:

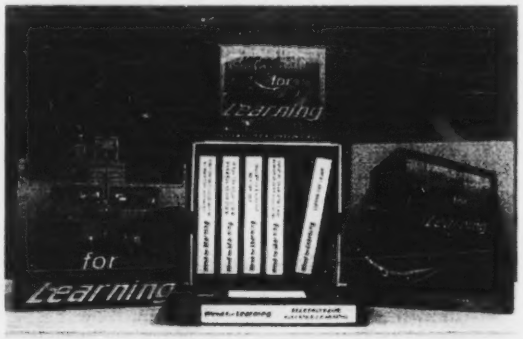
- the five sites, including Rogers, Carroll, Groesbeck, Grapevine-Colleyville, and New Braunfels ISDs, modeled a variety of practices enhancing student learning, instructional management, and administration
- all five sites contributed to the cadre of Texas educators and administrators trained and committed to the integration of technology into the curriculum

In 1997, technology staff development was the single priority of the grant opportunity. Six model sites were established. Applicants were to focus on the replication of existing, proven technology staff development models or processes that equip teachers and other educational staff with the technology skills necessary to infuse technology efficiently, appropriately, and effectively into the curriculum.

The intent was that these demonstration sites would share technology staff development expertise with districts that are ready to undertake a comprehensive implementation of technology staff development and/or provide assistance to districts that do not have an effective model or process in place.

Each of the six projects funded offer a different and unique perspective on providing technology staff development to various audiences with the intent of infusion of technology into the curriculum. Five projects focus on staff development of K-12 teachers and librarians and one addresses administrators. Four address the use of several technologies for all curriculum areas and two address distance learning technologies. The expectations for integration of technology into the curriculum vary from very early implementation to advanced implementation stages. These six projects offer a wealth of information and training materials to districts in Texas and other interested parties.

Through a collaborative effort, Lufkin ISD and Gladewater ISD produced a boxed set of six videos and an interactive CD-ROM, called *Wired for Learning*. These products focus on the establishment of collaborative partnerships to implement a distance learning environment encompassing voice, video and data capabilities and the proficiencies needed by educators to teach over a distance learning system. Target audiences for these materials include teachers, administrators and community members. A set of these materials was distributed to all public schools, charter schools, education service centers and other educational organizations. *Wired for Learning* is available at: http://www.wiredforlearning.org.



Lufkin ISD and Gladewater ISD share information to assist other educators in implementing a distance learning environment.

The Leander ISD technology staff development model, called T3, is a multi-layered website and CD-ROM focusing on K-8 technology proficiencies. This highly interactive website shares the technology staff development materials and examples needed to equip teachers with technology skills; video footage of teachers demonstrating technology skills in the classroom; and examples of students' work. The target audience for this site is K-8 teachers. The website can be accessed at: http://www. leander.isd.tenet.edu.

Leander ISD's CD-ROM and website share staff development materials and examples that focus on technology proficiencies.

The Amarillo ISD technology staff development materials, *Focus on Tomorrow*, are also available via a highly interactive website. This site provides teachers and administrators with technology materials which primarily target middle school and secondary teachers. The process used in the staff development design and all products associated with the project are available on the site with hyperlinks to classroom vignettes demonstrating the effective integration of technology into the curriculum. Available materials include presentations, brochures, training activities, and a replication manual that describes the development process, budget issues, teacher proficiencies and assessment. Work samples illustrating student and teacher best practices in the use of technology are also available. *Focus on Tomorrow* materials can be found at http://www.amarillo.isd.tenet.edu.

Carroll ISD technology staff development materials may be accessed via a website and a videotape series. This technology staff development project is an electronic mentoring process connecting new and novice teachers with mentor teachers, administrators and field experts. Training and information are available on the district website. A replication manual and videotapes that demonstrate lessons conducted over a videoconferencing system are also available. The target audience includes all teachers, with an emphasis on novice teachers. Materials may be accessed at http://www.southlakecarroll.edu/plc/plcmain.htm.

Soccorro ISD's project, Linking Infrastructure, Networking, and Knowledge through Technology, (L.I.N.K.) provides a set of curriculum materials that match specific technologies with the delivery of other types of staff development. The units focus on brain research, content standards, effective teaching strategies and research skills. Workshop participants created materials in these areas using specific technologies. A website is currently under construction that will make the workshop materials and curriculum guides available.

Through the replication of such technology staff development models, other districts can access comprehensive "how to" guides in order to plan and design technology staff development programs. These models include:

- instructions regarding planning, design, implementation, delivery and evaluation of technology staff development
- descriptions of the planning component
- established teacher proficiencies for technology skill acquisition
- assessment strategies to ensure proficiencies are achieved
- documentation of systemic changes that occurred during and after delivery of staff development
- strategies for providing ongoing upport
- ideas for building collaboratives, partnerships and community support
- examples of student work produced after trained participants implemented technology into their classrooms

Because of the information and materials created by these demonstration sites, districts do not have to expend funds for the development of materials. They have access to the developed materials that can be used in their entirety or modified to meet district needs. This can result in substantial savings for districts.

Because these materials were required to be in an electronic format, educators can participate on an "as needed" basis rather than an "in case needed" basis. Participants can access websites and view videos and CD-ROMs when needed. Administrators can establish goals for educators based on established and assessed educator proficiencies. Communities can learn of benefits resulting from technology implementation. Links to these technology staff development models are available on the TEA website at http://www/tea.state.tx.us/technology.

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Technology Literacy Challenge Fund: Technology Integration in Education Initiative

The staff development we have provided to teachers has not only provided them with new tools to use in the classroom, but it has also raised the level of enthusiasm and excitement about what can be done, even in a one-computer classroom. Methods of teaching are visibly changing!

Jane Stephens, Canyon ISD
TIE grant participant

Since 1997, the Texas Education Agency has awarded $48.5 million in federal funds to districts and collaboratives of districts to assist in the implementation of the four areas of the *Long-Range Plan for Technology, 1996-2010*: Teaching and Learning; Educator Preparation and Development; Administration and Support Services; and Infrastructure for Technology. The Technology Integration in Education (TIE) initiative is funded through the Technology Literacy Challenge Fund (TLCF). A full description of this funding opportunity is detailed in the Funding section of this report and a list of projects can be found in the appendix. Because of the intended integration and overlap between the four areas of the plan, it is difficult to categorize projects into just one of the four areas, with any degree of exactness. For example, while a project may be categorized as an Educator Preparation and Development project, it may contain elements from other categories. A project may have goals to provide online staff development to its teachers and, thus, is identified in the Educator Preparation and Development category, but a significant part of the project may also involve development of the infrastructure necessary to provide delivery of that staff development. In addition, all projects were required to have a staff development component.

Under the 1997 TIE initiative, five projects focused on Educator Preparation and Development. Under the 1998 TIE initiative, eleven projects, or almost one-third of all the 1998 projects, focused on Educator Preparation and Development.

Finally, putting the computer and the software into the teacher's hands AND teaching us how to show/use the stuff!

Tamara Raef, Amarillo/
Pleasant Valley
participant in technology training
provided through TIE grant

The goal of the TIE projects which focus on Educator Preparation and Development is to provide staff development and training to educators according to a "just in time" model. The implementation of this model will allow educators to acquire the necessary skills in incremental steps within a time frame that best suits their needs and abilities. Therefore the projects created models that use multiple delivery methods. Projects included the establishment and delivery of staff development via Internet and/or videoconferencing infrastructures to allow educators to receive their training on an as-needed basis. Professional development materials were also designed and developed for delivery via technology. The materials include CD-ROMs, websites and videotapes with scenes showcasing educators as they model effective and efficient uses of technology.

In many cases, incentive programs were a part of the overall staff development model. These incentives included provision of laptop computers to participants who successfully completed the staff development opportunities. Other incentives included release time and payroll deductions for personal purchase of computers.

Projects of this nature are capital outlay intensive. Staff development was conducted during the summer of 1998, following the bidding, selection and installation processes that are a necessary part of hardware acquisition. Assessment of participants' mastery of staff development skills will be conducted during the 1998-1999 school year. Highlights of some of the projects have been shared prior to the final report. Some examples follow.

- Corsicana ISD trained approximately 1,000 teachers in the summer of 1998 for multimedia production and development using an infrastructure that was created with TIE and Telecommunication Infrastructure Fund resources.

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- The 81 districts in the Access for All project in Region 10 Education Service Center area received in-depth training over 14 days. Originally, 400 teachers were scheduled for the training but nearly 1,000 classroom teachers actually participated. To meet the increased demand, ten days of master training was also organized and delivered via EdNet10 intranet and TETN.

- The 18-district ON LINE consortium led by Graham ISD, trained 108 teachers to effectively use multimedia workstations and serve as district "trouble shooters."

- The West Texas Telecommunications Consortium provided broad-based participation of 260 classroom teachers in five days of curriculum integration training. Teams from nine districts in Region 14 used this project to explore alternative approaches and to connect teachers and students in West Texas with other neighboring schools and the world.

- Instructional Technology Division specialists at each of four Irving ISD campuses teamed with the library/media specialist, the technical specialist, and with teacher facilitators. Together they developed and deployed a decentralized approach for technology training, instructional support, and curriculum product development.

- Region VIII has provided a Technology Leadership Academy for districts for several years, to infuse and integrate technology into the curriculum. When TIF and TIE grants were received, the focus changed to integrating the Internet into the classroom. Both grants specified selection of master teachers from each campus who would receive extensive training and then return to their districts to serve as mentors and trainers. Through the TIE grant, 24 district teams have developed curriculum materials in the core subject areas aligned with the TEKS. Lesson plans for integrating Internet resources are available at: http://www/esc8.net/tla/mtalesson.htm.

In June 1998, 11 TIE projects in the Educator Preparation category were awarded, impacting 98 districts. Results of these awards will not become available until the end of the 1999 school year. However, early indications reveal that teachers and educators are at a readiness level to address technology staff development with new enthusiasm. Online staff development, based on established models with quality instructional materials holds promise and potential for expanding the building technology capacity in the area of Educator Preparation and Development.

A summary of all TIE awards can be found in the appendix of this report.

Before I started this computer course, I could not even use a mouse...At one time I was not sold on using computers in the classroom, but now I am sold. I cannot wait until my classroom has a computer for each student!

Larry J. Hampton
Wheeler ISD
participant in technology training
provided through TIE grant

Texas Mentor School Network

The Texas Mentor School Network supports and facilitates improved student achievement in districts and campuses across the state. This is accomplished through the leadership provided by mentor schools with support from education service centers and the staff of the statewide Offices of Early Childhood/Elementary, Middle School, and High School Education. A primary objective of the Texas Mentor School Network is to connect practitioners and policymakers to important research and promising practices. Sharing what works on a statewide basis is an important step in crafting effective solutions to improve student performance. The Texas Mentor School Network monitors emerging state initiatives and new research to provide quality staff development to mentor campuses and ESC liaisons. Sharing occurs primarily through regional conferences, on-site visits and presentations at professional conferences. Promising practices and research in the use of instructional technology are key components of the support provided through the Texas Mentor School Network. The *Promising Practices* television series about mentor programs is produced and aired by the T-STAR Network. Videotapes of the 1997 series were provided to all mentor campuses, and are available to all schools through their education service centers.

Professional Development Through Distance Learning

Distance learning technologies facilitate the opportunity for the smallest, most remote school in Texas to provide world-class, just-in-time professional development and training for its teachers and staff. TEA has provided distance learning networks and promoted awareness of additional networks so that Texas schools can receive these programs. Distance learning programs are usually broadcast live and the systems usually have the capability for interactivity. A variety of technologies, such as video, audio, and computers, are used so that educators located a distance from where the instruction is being presented can participate in the professional development opportunities of their choice.

Distance Learning via the Internet

As the Internet infrastructure continues to expand into schools and homes, teachers have access to staff development opportunities never before available. The technology allows educators to receive information about their specific subject area, participate in highly interactive online discussions with peers and experts, and see video examples of effective teaching practices. These opportunities are available at the convenience and readiness level of the user.

In order for educators to effectively infuse technology across the curriculum, the educators must be given time to become proficient with the tools of technology. This is particularly true in the case of the Internet. Through staff development opportunities from a variety of sources including colleges, universities, education service centers and school districts, educators have the opportunity to learn about the Internet. The TEA website provides information regarding staff development opportunities and links to each of the statewide Curriculum Centers where a wealth of information and resources for professional development can be found.

One example of the many Internet resources available for professional development includes the Educator Resources web pages on the TEA website. The Educator Resources site was developed to provide online information and resources specifically for educator preparation and development. There are numerous resources available on many topics on this site at http://www.tea.state.tx.us/resources.

The information and products accessible through the Educator Resources web pages include:

- My School - AEIS reports for every Texas school, district, or region. This information can be used as schools assess where they are and where they need to improve.
- News Updates - current press releases and news stories. This information is important to ensure that Texas educators have access to the latest policies and information and can share this information with others in the district.
- Calendar of Events - important dates for conferences and professional development opportunities. This is an up-to-date listing of statewide professional development opportunities.
- The Texas Education Directory - current directory and mailing information for Texas schools, TEA, and related entities. The Directory can be used to send out notices and obtain feedback from district and regional contacts.
- Professional Development - up to date information about professional opportunities and resources, including schedule information for pertinent programming broadcast over the T-STAR Network and other professional Internet links to other professional development resources.
- Curriculum - information on TEKS implementation, statewide Curriculum Centers and their products, professional development activities, and many educator resources. Educators can spend many hours getting comfortable with the TEKS and accessing resources that assist in teaching and learning.
- Technology - the latest information on state technology initiatives as well as information and resources for implementing the *Long-Range Plan for Technology, 1996-2010*. These initiatives make it possible to learn more about technology as well as to obtain information on the technology resources available to schools.

- Libraries - information and resources available through the Texas Library Connection. The TLC resources provide an opportunity for professional development via professional journals and library resources.
- Best of the Best - special recognition schools and demonstration sites are highlighted. Schools can contact these sites to learn more about successful practices in the state.

There are many other Internet-based resources that focus on assisting schools with implementing the TEKS. There are statewide Curriculum Centers that provide resources for TEKS implementation. Some provide professional development opportunities. There are Centers for Educator Development in the areas of mathematics, science, reading and language arts, and social studies. There also are curriculum centers for the enrichment curriculum, including Career and Technology Education, Technology Applications and Languages Other Than English. The Technology Applications Sharing Technology Applications Resources with Teachers project has teaching and learning resources as well as technology planning and professional development resources. Other enrichment areas have resources under development.

The Texas Education Agency's Instructional Technology division has additional resources. This website contains:

- The *Long-Range Plan for Technology, 1996-2010* in a downloadable format
- The 1996 *Progress Report on the Long-Range Plan for Technology* in a downloadable format
- Information on state technology initiatives such as the Texas Library Connection and T-STAR; Technology Applications resources for teaching the Technology Applications TEKS and applying them in all curriculum; grant and funding information; and information on the education service centers' Technology Preview Centers and Training Programs.
- Links to other online resources

Distance Learning via Videoconferencing

The Texas Education Telecommunications Network

The Texas Education Telecommunications Network (TETN) is a statewide voice, video, and data network connecting TEA and all 20 regional education service centers. The TETN videoconferencing network provides communication between TEA and TEKS liaisons and content area contacts at regional education service centers, among others. These meetings give TEA and ESCs time to work together in developing plans for and providing professional development on the TEKS and other areas.

Videoconferencing activities over TETN include panel discussions, committee meetings, training and staff development, project updates and information. Some examples of professional development over the system include:

- Awareness Training: Social Studies TEKS-This conference was designed to communicate techniques for implementing awareness training aimed at all ESC Social Studies liaisons for the TEKS
- PEIMS Electronic Data Transmission-This conference provides training to PEIMS coordinators on the new Data Transmission system and updates participants on the overall status of the project.
- Governor's Texas Reading Initiative Update-This conference features curriculum and professional development training for implementation of the Governor's Texas Reading Initiative for all reading liaisons at the education service centers.

The TETN system also provides access to training for K-12 teachers from other partners. Texas Women's University sponsors the Speech and Language Pathology program that offers master's degree-level training for teachers throughout districts in Texas. The Center for Occupational Research and Development (CORD) is a non-profit organization devoted to bringing education to teachers in K-12. They offer programs on Algebra, reading, writing and other subjects over TETN so that teachers can master techniques in relating these subjects to real-world applications for K-12 students.

Beginning in the 1998-1999 school year, Stephen F. Austin University will offer programs for educators who work with the visually impaired. These programs will include Braille training and other programs for teachers seeking master's degree-level training in this area.

Videoconferencing is gaining popularity as a cost-effective delivery system for staff development and training. Recent enhancements to the TETN system will facilitate the interconnection of TETN with other videoconferencing networks and expand the capabilities for delivering staff development to the district and campus level.

Distance Learning via Satellite

Texas School Telecommunications Access Resource

In addition to Internet and videoconferencing, the TEA curriculum staff use the Texas School Telecommunications Access Resource (T-STAR) statewide satellite network to deliver professional development, share professional development resources with schools, and disseminate information about professional development opportunities such as conferences and workshops. For example, in the bimonthly *TEKS TALK* series, TEA curriculum experts share information on implementation of the TEKS and include examples of professional development resources in each program. The audiences for these T-STAR programs include teachers, administrators and ESC staff throughout Texas, and other states, who regularly tape and then share the programs with others. Programming includes the latest information about a wide variety of topics such as: the new Texas Essential Knowledge and Skills, State Board of Education Certification, student assessment, State Board of Education actions, legislative developments, promising practices in a variety of curriculum areas, technology updates, graduation requirements, and school restructuring.

Teachers and administrators receive the most current professional development from the Texas Education Agency through these programs broadcast over the T-STAR Network. The T-STAR Network provides six hours of programming from the TEA each week during the school year as well as additional inservice programming on select topics broadcast in July and August. The programming is primarily designed to serve Texas school administrators, teachers and staff. For example:

- The *Eye On Earth* television series produced by the Texas Education Agency provides teachers with information about natural resources from state agencies that will assist in the implementation of the science TEKS.
- In the area of Fine Arts, representatives of art, music, theater, and dance participate in T-STAR programming to disseminate information about the development and intent of the TEKS in that curriculum area. Workshops and sessions are presented that utilize technology to demonstrate applications appropriate to course content in Fine Arts.

Programming, shot on location, features exemplary schools and best practices. Some examples include:

- *Project Reach: Re-examining Education for all Children* - gives an overview of issues in Special Education, including assessment, individual education plans, least restrictive environment, and inclusion.
- *Promising Practices: Diverse Perspectives* - explores approaches which foster educational innovation and examines ingredients for success in real-world schools.
- *Texas Reading Initiative's Creating Lifelong Readers*- focuses on the importance of reading to lifelong learning and explores strategies to increase reading ability.
- *Deaf and Hard of Hearing Issues*- is a monthly series presenting information related to the education of students who are hearing impaired.
- *Successful Title I Schoolwide Programs* - takes a look at how some Texas schools with high poverty rates improved their student achievement scores.
- *Keys to Success in Elementary Mathematics* - This program visits several Texas schools and shows what they have been doing to improve student performance on TAAS elementary school mathematics.

These professional development programs are designed to improve teachers' and administrators' ability to increase student achievement. All programming broadcast by the Texas Education Agency over T-STAR is provided free of charge. Additional professional development programming is available from other program providers, and can be accessed by districts via their T-STAR satellite dish. Some of this programming is available free of charge; most of it is available for a fee.

Star Schools

The federal Star Schools program provides teachers, administrators, policy makers, and others concerned about education with a mechanism to become better informed. Texas is a partner in the Satellite Education Resources Consortium (SERC) and the United Star Distance Learning Consortia (USDLC) both of which received funding for the recent five-year Star Schools cycle. Membership in these two projects provides free or reduced-fee access to quality professional development programming for Texas educators and promotes the utilization

of state-provided distance learning networks, such as T-STAR.

Satellite Education Resources Consortium

The "Next Generation" Star Schools Project from the Satellite Education Resources Consortium (SERC) represents a variety of technologies. The most exciting is the creation of curriculum-based multimedia materials in science and mathematics which will be made available on demand by digitizing extensive video archives within existing public television inventory. This new technology will allow teachers in Texas to have immediate access to resources from a host of exemplary programs such as the *CPB/Annenberg Mathematics and Science Project*. Our membership in SERC provided the following professional development programs to Texas Public Schools, at no cost, for the 1996-1997 school year:

- *Preparing New Teachers for the Beginning of the School Year*
- *Science: Out of this World*
- *Using the TI - 82 Graphing Calculator*
- *Creating a Staff Development Program for all Employees*
- *School to Work: Bridging Education and Business*
- *Teaching to the National Science Education Standards in Grades 3 & 4*
- *Supervision and Evaluation for the New Administrator*
- *Utilization Technology in Teaching Visual Arts & Music*
- *The Internet Training Series*
- *NTTI - Using Instructional Media to Enhance an Interdisciplinary, Language-Driven Approach to K-5 Mathematics & Science.*
- *Technology in the Classroom*
- *Next Steps in Technology: Multimedia in the Classroom*

In addition, the Texas Education Agency produced the following professional development series, which were distributed nationwide by SERC:

- instruction in mathematics, science and reading
- teacher preservice and staff development (particularly in the use of technology in the classroom)
- literacy development for adults, deaf children, and others who are typically underserved

United Star Distance Learning Consortium

The second Star Schools consortium in which the TEA is a partner, is the United Star Distance Learning Consortium (USDLC). USDLC is a nonprofit educational consortium with a 10-year history of innovation and success in the production and distribution of educational programs and products to adults and K-12 teachers, students and administrators in schools across the country. The USDLC Star Schools project, through a convergence of satellite, Internet, and CD-ROM technologies, utilizes an engaged learning approach to specifically improve:

- instruction in mathematics, science and reading
- teacher preservice and staff development (particularly in the use of technology in the classroom)
- literacy development for adults, deaf children, and others who are typically underserved

Many USDLC staff development programs are also broadcast over the T-STAR network to Texas schools. Our membership in the USDLC provided the following staff development programs to Texas public schools, at reduced costs, through StarNet, a USDLC partner, for the 1997-1998 school year:

- *Teachers Talking to Teachers about Technology*
- *Technology for Administrators*
- *Tech Talk*
- *Engaged Learning: Models and Applications*
- *Hands-on Learning in Algebra*
- *Mathematics as a Communication Tool*
- *Promising Reading Practices*
- *Literature Review*
- *Hands-on Science*
- *Using Reading Games to Extend Reading Skills*
- *Strategies for Students with ADD*
- *Classroom Assessment of LEP Students*
- *School-based Success Stories for LEP Students*
- *Success for Limited English Proficient Students: What Works*
- *Integrating Language, Literacy and Culture*
- *Limited English Proficient: Theory and Practice*
- *Discipline with Dignity: Working with the Difficult Student*
- *Strategies for Conflict Resolution*
- *Student Discipline and the Law*
- *Cooperative Discipline: the Difference Between Classroom Success and Failure*
- *Student Expression and the Law*

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Programs under development include:

Education Service Center Region 20

- *Primary Reading Instruction and Models for Early Reading (PRIMER)*
- *Forming Opportunities for Reasoning and Understanding Mathematics (FORUM)*

New Mexico School for the Deaf and Texas School for the Deaf

- *Conceptual Framework for Deaf Education: Two Approaches to English Literacy*

North Carolina Department of Public Instruction

- *Supporting our Teachers...Using Technology* - five individual series that cover Assistive Technology in the Inclusive Classroom; Essential Advocates: Administrators and Technology; Transitioning from Preservice to Inservice; Using Technology to Establish Inservice Training Programs; and Measuring the Impossible: Student Assessment Models

Western Illinois University and the Illinois State Board of Education

- *Engaged Learning-Staff Development: Across the Spectrum of Learners* - a series of programs that address issues facing today's teacher education institutions, application-oriented teaching for adult literacy/basic education educators, and the use of technology in the K-12 classroom

Florida Department of Education

- *Web World Wonders* consists of live WebCam sites that make it possible for anyone from anywhere to explore Florida's natural habitats. Teachers will be able to find lesson plans and student activities that increase environmental awareness and communication skills. A training and instructional CD-ROM will also be produced.

Programs developed for the USDLC Star Schools Project are free to anyone with access to the Internet and/or satellite technology. Information can be found at http://cait.wiu.edu/starschools.

StarNet

Texas schools have access, at significant discount, to an array of staff development opportunities through the USDLC's StarNet Distance Learning Network. In addition to USDLC programming listed above, a selection of USDLC/StarNet staff development delivered to Texas schools from 1996 to 1998 includes:

- *Discipline with Dignity*
- *School Violence; Perspectives from the Field*
- *Using Museums to Enhance Curriculum*
- *Success for ESL Students*
- *Understanding Systemic Change*
- *Meeting Learners' Needs through Multiple Intelligences*
- *What TIMMS Tells Us About Curriculum, Teaching and Achievement*
- *Books, Books, Books: Kindergarten to Grade 5*
- *Essential Advocates: Administrators and Technology*

StarNet distance learning services and content are featured on the Web at http://www.starnet.org and http://www.starschools.org.

Administration and Support Services

With thoughtful planning, creative leadership and clear objectives, every school has the potential to capture the full range of educational benefits that flow from effective technology use.

From *School Technology and Readiness Report: From Pillars to Progress.*
The CEO Forum on Education and Technology, October 1997

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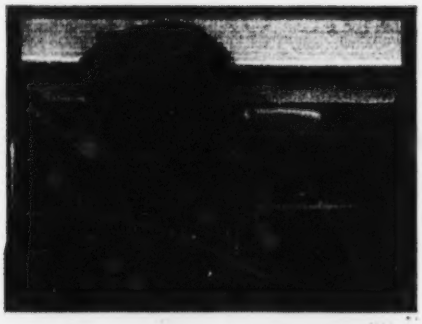

The Vision

Imagine a district...

...where every educator—regardless of subject, experience, or district location, size or wealth—can get hands-on training instantaneously, when or where he or she needs it; interact with a virtual community of professional colleagues; and have access to financial data and student performance information as well as the analytical tools to use them effectively.

The Reality

The Texas School Directory is now available on the TEA website. The online version, known as AskTED, provides address and e-mail information for correspondence with school districts. In a recent one-month period, more than 82,000 individuals accessed AskTED for information.

Texas school districts can now order textbooks over the Internet and publishers can check their book orders daily through the TEA's new Educational Materials (EMAT) online system. To date, $128 million worth of textbooks have been ordered in FY '98 through the new system. That represents enough textbooks to meet the needs of 95% of the state's 3.8 million public school students.

TEA Answers Online is an easy to use, web-based forum for districts and education service centers to get answers pertaining to financial management.

Executive Summary

Technology systems provide tools for many educational purposes, whether the learners are students in a traditional classroom or at a remote distance learning site; teachers seeking and providing knowledge; or administrators and support staff responsible for the efficient operation of a school district. Strong administrative services are critical to the effective, efficient operation of schools and the improvement of student achievement. Technology provides administrators access to the information and services they need to make informed decisions that can impact student performance and gives them tools to streamline administrative tasks.

Schools will be asked to use technology-based data systems in planning and decision-making. Administrative and support staff in school districts require sophisticated technology tools to accomplish their tasks. Their responsibilities include keeping track of: student attendance; participation in special programs; student performance and the educational progress of mobile students; expenditures from multiple sources of funds; and local accountability information. School personnel must also make decisions about food, transportation and other services critical to the comprehensive and efficient operation of a school district.

The requirements of the Public Education Information Management System (PEIMS) and the Academic Excellence Indicator System (AEIS), in particular, challenge administrative staff to take full advantage of technology tools for data gathering, analysis and distribution. It is imperative that administrative and support staff have access to both the technology tools and the professional development needed to effectively and efficiently use these new tools.

The *Long-Range Plan for Technology, 1996-2010* outlines recommendations to: standardize state informational reports from districts and campuses; revise PEIMS; identify methods to use technology for student assessment and record-keeping purposes; and provide leadership in the use of data for sound decision-making.

During the past two years, the TEA website has expanded to include information for administrators, educators and parents from most Agency program areas. Several program areas now have their administrative rules available on the web.

Web-enabled applications eliminate the need for districts to mail paper documents when applying for funding and reporting on expenditures. The Texas Education Directory (TED) is a growing online database of information about the education community. AskTED, the Agency's customer-friendly interface to TED, allows districts and service centers to access commonly requested, predefined reports and mailing labels. Information from the Centers for Educator Development, Academics 2000, the Texas Reading Initiative and the Texas Essential Knowledge and Skills are available on the web for Texas teachers, parents and other public education stakeholders. The enhanced availability of accountability data for districts and parents has been of great interest to the general public. Over the past two years, TEA provided information via the Internet to a variety of audiences. Making the information easily accessible and presenting it in the format best suited to a widely diverse audience has been and will continue to be a challenge. That challenge is being met via the Agency's website resources.

Regional education service centers will continue to play a key role in providing administration and support services. The ESC section of this report illustrates examples of the services provided by the education service centers.

Before administrators can take advantage of the information and services that are available to them, they must plan for the use of technology. Technology planning provides the framework to make the effective use of technology possible. It is an essential, and ongoing, process. Because technology planning is so important, it is a required component of campus and district improvement plans. Many funding sources such as the Telecommunications Infrastructure Fund, the Technology Literacy Challenge Fund, and the Universal Service Education-Rate Discount Program also require technology plans. Following the initial planning process, districts must evaluate the implementation of their technology plans to allow for modifications as needed. With the changes in technology and local needs, technology plans must be flexible and must be updated regularly. Assistance with technology planning, such as workshops, customized planning services and planning grants, is available from a variety of sources. Planning is the first step toward effective use of technology.

Business Applications

As technology is utilized throughout the educational system, business applications can offer cost-effective solutions for administration. The Texas Education Agency provides a variety of business applications to support districts and education service centers.

Academic Excellence Indicator System

Much of the information from the Academic Excellence Indicator System (AEIS) that provides the public with reports on student performance, demographic information on school and district staff, and information on school and district finances is now available on the Agency's website. In response to the needs of public education stakeholders, the ability to search and query the information, which is arranged by school year, has been significantly enhanced. An interactive index of accountability ratings of every school and district in the state is also available on the TEA website.

Adult and Community Education System

The Adult and Community Education System (ACES) tracks and reports the status of students participating in Texas adult education programs. Implemented in March 1998, the system allows adult and community education users to enter their data via the Agency's website and to print reports for their own use. The system eliminates the need for manual submission and data entry and the long hours of work required to organize the data into reports. The new ACES Batch Utility allows users to enter large volumes of data via a batch process, eliminating the need to spend hours at a computer terminal entering student and class data. The System collects new data regarding student information required by federal funding sources. One user said it best:

> *Having ACES live is much better than any award-winning movie! Yahoo!!*
>
> ACES User

AskTED

The *Texas Education School Directory* is now available on the TEA website. This online directory is known as AskTED. ESC and district staffs rely on the address and email information for correspondence with school districts. This online directory application also provides access via the web to commonly requested, predefined reports and mailing labels. In a recent one-month period, more than 82,000 individuals accessed AskTED for information. The *Texas Education School Directory* is also available in print and on CD-ROM.

Child Nutrition Programs Information Management System

In October 1994, the Child Nutrition Programs Information Management System, (CNPIMS) that processes $55 million per month in school food service claims reimbursements for more than 1,000 school districts, became an online system that saves time and resources for districts and the Agency. Districts now receive reimbursement within five days of submitting a claim. The process previously took five to six weeks. The fast turnaround allows districts to accrue interest sooner on claims reimbursements. The system has also reduced the volume of paper records in the districts and the Agency's Child Nutrition Programs Division, and eliminated the need for each claim to be hand-checked upon receipt by the Agency. Now, errors are found immediately by the system and are corrected by the district before the claim is submitted. In 1998, the system was further improved when it was rewritten for the web. There has been an overwhelmingly positive response to the move to the web, since the system is now more straightforward to use and reduces the time the district personnel must spend entering claim data each month.

Educational Materials Online

Texas school districts can now order textbooks over the Internet and publishers can check their book orders daily through the TEA's new Educational Materials (EMAT) online system. Along with speeding up the processing of a request, this system also helps with the inventory and auditing of textbook purchases. With EMAT online, a local school district employee keys in the purchase request and transmits it to TEA over the Internet. Security measures are built into the system. The frequent updates listing total purchases for each book will also help publishers plan their printing and production schedules. EMAT online uses industry standards for transmitting data, making the system compatible with freight companies and publishers' depositories. To date, $128 million worth of textbooks have been ordered in FY '98 through the new system. That represents a sufficient number of textbooks to cover 95% of Texas' 3.8 million public school students. Some of the information generated by this system can be

found on the Agency's website at: http://www.tea.state.tx.us/emat/.

General Educational Development Test Center Information

Since 1996, the General Educational Development (GED) system has provided access to student records via a secure connection. GED testing centers are able to easily determine an applicant's current educational status. The Texas Department of Criminal Justice also uses this system to aid in determining the educational level of prisoners. The *GED Annual Statistical Report* has been added to the TEA website. This report provides the breakdown by ethnicity, age, sex, and other information of GED test takers.

Integrated Voice Response

The Texas Education Agency implemented a telephone-based Interactive Voice Response (IVR) payment report system in November 1997. This system provides school districts, regional education service centers, and charter schools with information about payments that they receive from the state. In the past, thousands of cards had to be mailed to school districts and education service centers each year to notify them of the payments.

In April 1998, TEA put district payment reports on its website. Administrators and business officers can now find their payment information through the telephone, over the Internet, or through monthly e-mail reports. This fall, the Agency will enhance its IVR and Internet payment reports. In addition, districts, ESCs and charter schools will be able to request payments through IVR or Internet payment systems. While Foundation School Program Funds and Child Nutrition Program Funds will continue to be paid monthly on a regularly scheduled advance basis; administrators and business officials will be able to file their expenditure reports over the telephone or the Internet for all federal and state discretionary grants. They will be able to request payments as they are needed to meet the authorized expenditure of a district, service center or charter school. For most grants, paper expenditure reports will no longer be used

Perkins Grant Application

The Division of Career and Technology Education (CATE) encourages districts to apply for federal Carl Perkins funds through an automated online application available at http://www.tea.state.tx.us/Cate. About 100 school districts used the automated application process in 1997; the first year the process was available statewide. School districts can also use the site to download a completed Schedule 4D form that must be filed with their application for Carl Perkins funds. The form is data-intensive and can be difficult and time-consuming to fill out. The online program uses the district's county district number, PEIMS data, and other calculations to complete the form. Districts may also use the site to view the amount of their Carl Perkins allocation.

Public Education Information Management System

The Public Education Information Management System (PEIMS) is a repository of data collected from or about local education agencies in Texas. An automated process was implemented in January 1998 that allows ESCs and districts to transfer their PEIMS data to the Agency via File Transfer Protocol rather than by tape or diskette. Districts can now download the *PEIMS Reports +*, which provides data reporting at the district level, from the web. Beginning in August 1998, images of Bulletin 742 forms became available over the Internet for viewing by school districts. In the future, districts will be able to submit data to TEA through automated forms and incorporate data into the PEIMS and other databases. Published PEIMS data standards, reinstated courses, and editor code tables are also available on the Agency's website.

TEA Answers Online

TEA Answers Online is a web-based forum for districts and education service centers to get answers to issues pertaining to financial management. TEA Answers Online will be posted to a searchable database. The *Accounting Resource Guide* is also provided to the public so that they can access the financial rules that school districts are required to follow. Training was conducted by Agency and service center staff to give business managers throughout the state the information they need to effectively use this new forum. TEA Answers Online will be expanded to other program areas of the Agency. Extensive field training will target the potential user community.

To ensure that administrators have the training necessary to effectively use these and other web-based Agency applications, specific training programs are provided. Each educational service center offers a variety of support services to districts in their region. The special Education Service Center section of this report gives an overview of those services.

Administrator Resources

Library Standards

The new standards for school libraries have established guidelines that promote technology access through the following program profile.

An exemplary school library should be housed in a building or space that:

- offers barrier-free access at a location designed to permit use before, during and after the instructional day and, where appropriate, beyond the school year
- provides space proportionate to enrollment for students, teachers and other users to engage in multiple learning experiences, as well as classroom space for direct instruction, conference space for small group study, and space for use of media, computers and electronic information resources
- allows for expansion and remodeling to accommodate a changing information technology environment
- provides access to national, state, district-wide and local electronic information sources through digital drops; cable and fiber optic capabilities for library functions; (circulation catalogs, and telecommunications) and networked resources

The Texas Education Agency gathers and posts, on its website, the types of library automation software used in specific libraries participating in the Texas Library Connection.

Texas Library Connection

The Texas Library Connection (TLC) encourages the use of common data standards for Texas school libraries by requiring the use of United States Machine Readable Catalog Records (USMARC) to participate in the Texas Library Connection.

One of the high schools in San Angelo ISD burned just before school was out in May. Most of the building was completely destroyed. The destruction included the library. Lakeview High School is a member of the Texas Library Connection, so Auto-Graphics was able to extract their collection in order for the district to have an accurate $$$ value of the collection for insurance purposes. This was a GREAT BIG PLUS as the district saw it. Another reason to sing the praises of TLC.

Donna Pohl
ESC Region XV

The TLC assists with the administrative functions of the school librarian by providing full USMARC cataloging records; facilitating collection development; and supporting resource sharing.

I am so excited about using TLC as a cataloging resource. I still had a cartload of videos to catalog manually. Using TLC, I am getting a 98% hit rate on titles. Now I only have a wee number to do as original cataloging. Thank you for helping us help our students and faculty.

Mary Brown, Thomas Jefferson High School
San Antonio ISD

Universal Service Fund Education-Rate Discount Program

Since the federal Education-Rate (E-Rate) program can provide Texas schools with significant savings on telecommunications services, Internet access, and internal wiring, TEA has taken a leadership role in providing accurate and timely information about the program, the application process, and coordination at the state level. To provide E-Rate information to all stakeholders, TEA utilizes several statewide telecommunications networks and resources. One of the most popular, is the section of the Agency's website that is devoted to the E-Rate program. This site provides the most current information from the Schools and Libraries Corporation (SLC), the organization that administers the discount program, and offers application forms, links to other sites and special instructions to Texas schools.

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In addition, TEA mailed four informational packets to all Texas schools that included a special E-Rate newsletter, information from the Schools and Libraries Corporation, and information on the technology plan approval process created and administered by TEA. Five E-Rate television programs were broadcast on the T-STAR satellite network and presentations were made at various conferences around the state. The Texas Education Agency also took a leadership role in coordinating E-Rate activities by organizing and facilitating four statewide coordination meetings during the 1997-1998 school year. Representatives of various state agencies, school districts, education service centers, professional organizations, telecommunications providers, universities, private schools and others interested in the E-Rate program attended these meetings. Similar activities are planned for the future to continue the Agency's support of Texas schools that participate in the discount program.

Year 2000 Compliance

The Texas Education Agency Year 2000 (Y2K) project for the remediation of information systems initially began in March 1996, and significant progress has been made in the intervening time span. The project's original schedules and plans have been revised to meet the schedule set forth by the House Appropriations Subcommittee on Major Information Services, which calls for all state agencies to have their information systems completed and ready for testing by December 31, 1998.

The Agency's Y2K project is currently on target to meet the Subcommittee's goal. Through a formal risk analysis, the Department of Information Resources (DIR) has classified TEA as "passive". This status signifies DIR's assessment of TEA as a "low risk" Agency for Year 2000-related information systems problems.

To ensure that the Agency stays on track in its goal to meet the December 31, 1998 deadline, TEA currently holds monthly risk management meetings involving the Information Resources Manager, Year 2000 Project Manager, Information Systems Division Directors, TEA Internal Audit, and the Agency's DIR Y2K analyst. This meeting involves formal review of project schedules and plans, including an assessment of risk and the creation of contingency plans.

There are two TEA applications designated as "Mission Critical" to the State of Texas - the Foundation School Program (FSP) and PEIMS. The remediation of these two applications to Y2K compliance has been given the highest priority, and these efforts are currently on schedule.

The Y2K infrastructure team is in contact with vendors to assess embedded systems compliance and determine their functionality and impact on TEA's infrastructure of phone systems, environmental units, power supplies, fire systems and other important support systems.

TEA's role in regard to school districts and educational service centers is to provide awareness of the Y2K problem. The Y2K Project Office began that process by:

- hosting a Y2K Briefing for ESCs
- giving awareness presentations in cooperation with DIR
- assisting ESCs in the development of work groups
- placing information on the TEA website
- sending letters from the Commissioner's Office highlighting the more important issues of the Y2K problem

Regional Service Centers Computer Consortium

Nineteen regional education service centers, with leadership from ESC-20 in San Antonio, provide and support mini/micro administrative software for over 70% of the public school districts in Texas. These computer software packages, available through the ESCs, are compliant with state and federal reporting and accountability requirements, conform to Year 2000, and are fully PEIMS compliant.

Technical Support

Texas Education Telecommunications Network

The Texas Education Agency and regional education service centers cooperatively maintain and operate the statewide videoconferencing network known as the Texas Education Telecommunications Network (TETN). The TETN Governing Board provides leadership for the cooperative, approves strategic plans and appoints committees for specific purposes. The Governing Board receives input from the Content and Services Planning Group, the Infrastructure Development Group and the Network Operations Group. The Governing Board meets on a regular basis throughout the year and provides recommendations to all charter members regarding policies, finances and strategic direction. Five senior staff at TEA and five ESC executive directors serve on the TETN Governing Board.

The TETN videoconferencing network management is comprised of two levels of administration: the central management staff and the site managers. The central management staff, housed at Education Service Center Region XIII in Austin, includes a central video network manager, an equipment manager, and a scheduling coordinator. Their function is to oversee the daily operations of the video network. The site managers, located at each education service center and the Texas Education Agency, are responsible for the day-to-day management, training and operation at each site.

Central management staff is responsible for three areas: network management; equipment management; and scheduling. Network management responsibilities include procurement and installation of required equipment at the remote sites. The equipment management area is responsible for the actual maintenance and troubleshooting of existing hardware. The scheduling area manages the conference control software and coordination of conference requests with site managers at the regional education service centers and TEA. Additional information to assist users is also made available on the TETN website.

Each member of TETN has a site manager who is responsible for the scheduling, use, and maintenance of the system. Site managers receive hands-on training on all the features of the videoconferencing system and work together in regularly scheduled site manager meetings conducted over the system to ensure efficient operations of the network. Site managers are responsible for the training of users at each site to facilitate effective use of all the features offered by the system.

Texas School Telecommunications Access Resource

T-STAR allows our administration to keep in contact with what's new and what's going on in the state.

Katherine Feuerbacher, district librarian
Woodsboro ISD

The Texas School Telecommunications Access Resource (T-STAR) provides the technical support that allows districts to take advantage of the distance learning opportunities available through satellite. The administrative personnel for T-STAR provide the necessary organizational structure to support the operation and utilization of the T-STAR studios which broadcasts programming from the Texas Education Agency over the T-STAR Network.

The administrative staff includes a network director, chief engineer, programming development coordinator, programming producers, and video directors. The network director is responsible for the coordination and implementation of the T-STAR Network studio operations.

Information distribution and training activities are implemented by the T-STAR Information and Training Center located at Education Service Center Region 10, in Richardson, Texas. The T-STAR Information and Training Center operates the telephone hotline for operations and technical assistance and questions regarding distance learning programming and broadcast schedules. The T-STAR website provides additional technical and training information. Problems and concerns are addressed through training; conference presentations; articles

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in a variety of publications, including those produced by the T-STAR Information and Training Center; and additional support activities.

In each education service center, two people are designated as the T-STAR contacts for that region. They receive training from the T-STAR Information and Training Center in both the operation of the satellite system and the effective use of satellite-delivered programming. Each T-STAR contact then provides training and consultation to the districts in their region. In addition, the Agency broadcasts training programs over the T-STAR Network and makes training tapes available to the ESCs and school districts. These programs also provide training on both the equipment operation and the effective use of programming.

Most of the districts currently using T-STAR have at least one local teacher or staff member who has attended training on how to operate and maintain the equipment. All education service centers and each T-STAR system site at the campus or district received a *T-STAR Survival Kit* that contains print and video materials that provide all the information needed to operate the system. Information about the distance learning resources available via satellite and examples of distance learning courses and programs is also included. Additional information and support is available via the *T-STAR Magazine*, and *T-STAR Programming News* and the T-STAR website at: http://www.t-star.org.

T-STAR support activities are guided by the needs of its audience. Much of this information comes from the T-STAR Advisory Board. The Board is comprised of members representing school districts, education service centers, public television, institutions of higher education and industry.

Both T-STAR and TETN provide more telecommunications services to school districts and to education service centers. The many benefits these expanded telecommunications capabilities bring to Texas schools include distance learning programming, personnel timesavings, travel savings, and increased communications and information sharing among educators. The value schools and education service centers place on the telecommunications services is evident through the continued use of the networks and the positive feedback from users. The network administrative and support services continue to find innovative solutions to help the members of the Texas school system use the statewide telecommunication networks effectively and efficiently.

T-STAR is a vital resource in our district.

Joy Rousseau, curriculum director
Arp ISD

Technology Planning

Before administrators and staff can take advantage of the information and services available to them through technology, they must plan for its use. Planning is the first step toward the effective use of technology.

Planning Requirements

State statute directed the State Board of Education to develop a long-range plan for technology. In addition, technology planning is a required component of campus and district improvement plans. The Texas Education Code states that the district improvement plan must include provisions for the integration of technology into instructional and administrative programs. Advances in technology and connectivity provide opportunities for educators to explore the Internet, expand distance learning for students and communities, participate in professional development available through distance learning technologies, transfer data electronically, and utilize technology-based productivity tools. With the growth of the Internet and distance learning technologies, planning for connectivity has been and continues to be a priority for school administrators.

> *As a result of the technology plan implemented by the state, students in Bastrop ISD now have access to the Internet. They are able to take a multitude of high-tech courses at the middle and high school level, including multimedia, robotics, desktop publishing, web mastering, video technology, and digital graphics and animation...Without the backing and leadership of the state, very little of this would have happened.*
>
> Lori Lusk
> Bastrop ISD

Effective technology planning is a process not a product. With the changes in technology and local needs, technology plans must be flexible and must be updated regularly. The involvement of teachers, administrators, parents, students, community and business partners, and other stakeholders is essential to the planning process and successful implementation. Those engaged in the planning process are more likely to provide continued input and support throughout the implementation process.

The technology planning process is an essential element for successful implementation.

Many funding sources such as the Telecommunications Infrastructure Fund, the Technology Literacy Challenge Fund, and the Universal Service Fund Education-Rate (E-Rate) Discount Program require technology plans. While many districts already had a technology plan in place many used these funding guidelines to update their plan. To participate in the federal Universal Service Fund E-Rate Discount Program, school districts are required to have a technology plan certified by the state education agency. Using criteria provided by the Schools and Libraries Corporation, a peer review process was developed and implemented by the Texas Education Agency to review each district's and ESC's technology plan. Key elements required in the plans include:

- strategies for integrating information technologies into the school curriculum
- strategies to ensure appropriate staff development for effective use of information technologies
- assessment of the telecommunication services, hardware, software and other services that will be needed
- budget strategies to acquire and maintain the hardware, software, professional development and other services that will be needed
- evaluation strategies to ensure effective implementation of the technology plan

Over 750 plans were reviewed and certified for participation in the E-Rate program. Additional opportunities for technology plan review and certification will be provided in coordination with the implementation of the ongoing E-Rate program.

Quality technology planning is not only guided by funding sources but also changes in technology and district needs. As districts acquire hardware and software, develop telecommunications infrastructures and provide professional development, additional planning is necessary to continue to provide content, training, maintenance and support. Evaluation of the implementation of technology plans is also critical to allow for modifications as needed.

Technology Planning Resources

Assistance with technology planning is available from a variety of sources. Technology Preview Centers and Training Programs in each regional education service center can assist district and campus personnel in developing and maintaining technology plans for the comprehensive use of appropriate technology in all aspects of instruction, administration and communications. Education service centers provide technology-planning workshops as well as customized technology-planning services for districts. Additional information on these services is included in the Education Service Center section of this report.

Projects for Educational Technology provide planning grants to schools to assist in the development of comprehensive technology plans. The South Central Regional Technology in Education Consortium (SCR*TEC), the Support for Texas Academic Renewal (STAR) Center and many professional organizations also offer assistance and technology planning tools.

Projects for Educational Technology

Statute directs the Agency to establish technology demonstration programs to investigate the uses, effectiveness and feasibility of technologies for education and provide models for effective education using technology. Projects for Educational Technology (PETs) is a planning and implementation grant program which allows districts or collaboratives to design and implement plans for using technology to enhance staff development and student learning. Sixteen technology planning grants were awarded in 1996. The technology grants ranged from $16,000 to $25,000 and totaled more than $300,000. Results of those grants include technology planning tools that can be shared across the state.

For example, the Alice ISD grant resulted in a collection of technology surveys that may be used by other districts to identify existing technology resources, personnel resources, inventories, curriculum training needs, and accessibility of technology to teachers and students.

One of the main products of the Huntsville ISD planning grant was the *Huntsville ISD Planning Manual* which includes instructions on the planning process, methods used to assess program needs, a description of the objectives and activities, suggested modifications for future planning endeavors, and methods used in evaluating the program.

As a result of their technology planning grant, Nacogdoches ISD developed a collaborative with five other districts, Stephen F. Austin University Center for Professional Development and Technology and Region VII Education Service Center. Nacogdoches ISD is featured in the videotape series *"Seeds of Change: Technology Updates"* and *"Engaged Discoverers"* produced by the Southwest Educational Development Lab (SEDL).

Many of the recipients of technology planning grants developed plans that led to subsequent grants from a variety of sources, including the Telecommunications Infrastructure Fund, the Technology Literacy Challenge Fund and Projects for Educational Technology.

South Central Regional Technology in Education Consortium

The South Central Regional Technology in Education Consortium (SCR*TEC) is one of six regional technology consortia established by the U.S. Department of Education through the Office of Educational Research and Improvement to accelerate school reform initiatives in America's schools through the integration of advanced technologies into the instructional process. In particular, this initiative focuses on the successful integration of technology into K-12 classrooms, library media centers, literacy initiatives, preservice education and other educational settings. The SCR*TEC serves the states

of Kansas, Missouri, Nebraska, Oklahoma and Texas. State operations for Texas are conducted out of Texas A&M University, College Station, College of Education.

The SCR*TEC has developed a number of tools to assist educators to successfully plan, implement, and evaluate technology at the campus and district level. The TechPlanner is an interactive, dual-platform CD-ROM that provides educators interested in developing technology plans with:

- a process by which to plan and deliver a technology plan
- factors that make for the successful integration of technology
- templates for preparing and generating various planning forms
- hyperlinks to provide additional guidance in the planning process
- hyperlinks to help in understanding the change process
- additional resources on best practices related to the planning process

The TechPlanner CD was distributed in October 1998. Teachers and administrators can find out more about the TechPlanner and other tools at http://www.coe.tamu.edu/~texas and http://planet.rtec.org.

Support for Texas Academic Renewal Center

The Support for Texas Academic Renewal (STAR) Center was established in April 1996. Funded by the U.S. Department of Education, the Intercultural Development Research Association heads the STAR Center in partnership with RMC Research Corporation and the Charles A. Dana Center at the University of Texas at Austin. Using a comprehensive, integrated programs approach, the STAR Center provides technical support services to TEA, ESCs, and local school districts that are implementing state and local reform efforts.

The STAR Center works with teams of campus and district administrators, teachers, parents, and community members along with education service center staff to develop and implement technology plans for schools. The STAR Center established the Excellence and Equity through Technology Network (EETNet) in the fall of 1997. The Center provides ongoing support for EETNet schools through site visits, phone and online support, website resources, staff development institutes and technology planning assistance. For more information visit: http://www.starcenter.org.

Infrastructure for Technology

It is impossible for me to imagine how school leaders...who are developing rich environments for learning, can achieve that without technology.

Linda Roberts
US Department of Education

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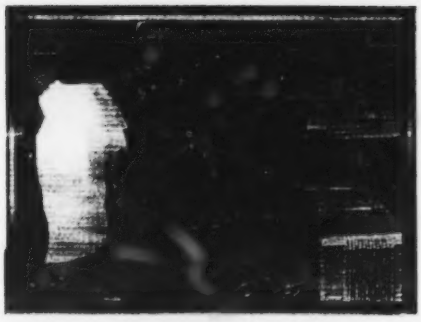


The Vision

Imagine a state...

...where every community member can visit the doctor for an examination and needed laboratory tests while at home or the office; collaborate with work colleagues at distant sites about complex data sets or video graphics; search primary source materials on an event half-way around the world; and take a high school or college course with fellow students from Port Arthur to El Paso by communicating rather than commuting.

The Reality

The collaboration of 65 school districts in 25 counties in the Panhandle Information Network helped bring telecommunications to West Texas. Grants from TIE, TIF and other sources enabled 55 participating districts to connect to the Internet, 46 districts to place approximately 1,400 computers in classrooms and 34 districts to create 18 interactive videoconferencing sites for professional development of core academic teams from elementary and secondary campuses. As one rural West Texas teacher put it: "We have changed the face of education in the Panhandle with this...project."

Many Texas school districts are implementing plans that include local and wide area networks, Internet connectivity and distance learning capabilities. Data reported through education service centers show that 941 out of 1,043 districts and 4,366 out of 6,875 campuses are directly connected to the Internet. Approximately 4,545 campuses have local area networks. In addition, approximately 1,034 districts, all 20 ESCs and TEA have steerable T-STAR satellite systems for accessing for-credit distance learning courses, K-12 curriculum enhancement programming and electronic field trips, and professional development teleconferences.

Executive Summary

The establishment of an infrastructure for technology is fundamental to the implementation of the *Long-Range Plan for Technology, 1996-2010*. This infrastructure is composed of two essential and complementary components: the technological infrastructure, including the "boxes and wires", and the human infrastructure of trained individuals who use and support the technology.

Texas began building this infrastructure with the implementation of recommendations in the first *Long-Range Plan for Technology, 1988-2000*. As outlined in the Texas Education Code, the Texas Education Agency has designed and implemented a telecommunications system for distance learning throughout the state. Comprised of Internet, satellite and videoconferencing technologies, this system continues to grow and evolve with the advances in technology and changing needs of the stakeholders.

As districts expand their technological capabilities, some are nearing the goal established in the *Long-Range Plan for Technology, 1996-2010* calling for a computer workstation for every educator and one workstation for every three students. Districts are also implementing plans that include local and wide area networks, Internet connectivity and distance learning capabilities. According to data reported through education service centers, 941 out of 1,043 districts and 4,366 out of 6,875 campuses are directly connected to the Internet. Approximately 4,545 campuses have local area networks.

Districts are using federal, state, and local funds, including the Technology Allotment, as well as grants from the Telecommunications Infrastructure Fund, the Technology Literacy Challenge Fund, and business and community partnerships. The Telecommunications Infrastructure Fund Board has awarded over $100 million in grants to districts for Internet connections and distance learning projects. While considerable advancements in infrastructure are evident in Texas schools, significant additional investments are still needed to reach the goals outlined in campus, district and state plans.

With the expanding infrastructure at the state, regional and local levels, Texas has recognized the need for a comprehensive, integrated state technology system for voice, video and data.

Through the leadership of the Telecommunications Planning Group, a partnership has been forged between the General Services Commission, the Department of Information Resources, the Telecommunications Infrastructure Fund Board, and the Texas Education Agency to implement such a system. Statewide focus groups are being held to engage all stakeholders in the development of an integrated telecommunications "backbone" that will provide cost-effective services to meet individual needs. With $12.5 million from existing funds and a $12.5 million grant from the Telecommunications Infrastructure Fund, the General Services Commission has contracted with engineering consultants to guide the development of this statewide infrastructure, known as TEX-AN 2000.

In addition, the Texas Education Agency has received a grant of approximately $10 million from the Telecommunications Infrastructure Fund to assist the Agency with the completion of two infrastructure projects - the Public Education Data Warehouse/Data Marts and the Central ATM Network Upgrade. These funds will also be used for the completion of one of the improvements to be made to the Public Education Information Management System (PEIMS) editor, as discussed in the Administration and Support Services section of this report.

The development and expansion of regional networks are essential to the technological infrastructure of the public education system. Details of the technical and human infrastructure throughout the state are reflected in the Education Service Center section of this report that features each of the state's 20 education service regions and highlights the leadership offered by the regional education service centers.

The human infrastructure is also growing throughout the state as the need for educators trained in the use of the technology and skilled technical support personnel increases. As technology initiatives are implemented, staff development on the specific technology and the integration of that technology into the education environment is essential. Major statewide initiatives include a comprehensive training program to ensure that educators are trained to take advantage of the resources provided. It is becoming more prevalent in wired schools today to have technical personnel who are dedicated to the tasks of complex network management as well as routine upkeep of school computer equipment. Many schools are training and using students as key personnel to support their technology infrastructure.

Infrastructure for Technology

Technology, used effectively as an instructional delivery system, can be the "equalizer" which brings both excellence and equity to the classroom.

PETs grant participant
Huntsville ISD

The mission of the Texas Education Agency is to build the capacity of the Texas public education system to provide all students with a quality education that enables them to achieve their full potential and fully participate now and in the future in the social, economic, and educational opportunities of our state and union. The Texas Education Code provides direction to the Agency regarding the fulfillment of this mission:

The Agency, in coordination with institutions of higher education and other public or private entities, shall maintain and expand, as needed, the telecommunications capabilities of school districts and regional education service centers (ESCs). The Agency shall design and implement a telecommunications system for distance learning throughout the state.

The TEA is meeting this challenge by pursuing the introduction and expansion of technology of all kinds and at all levels of the Texas public school system.

School districts use many sources of funds to meet the demand for technology in the classroom, including:

- their share of the Technology Allotment established by the Texas Legislature
- grant opportunities such as the Technology Literacy Challenge Fund (TLCF), the Projects for Educational Technology (PETs), and the Texas Infrastructure Fund (TIF)
- telecommunications discount programs such as the Universal Service Fund's Education-Rate (E-Rate) program
- local funds, including bond elections

These funds assist schools in the purchase, maintenance, and continued operations of terrestrial and satellite-based networks.

Texas gives school districts and campuses in rural, remote areas of Texas priority when it comes to grants and the disbursement of funds for technology. As a result, significant inroads have been made in equalizing the access to quality educational opportunities.

All kids need to have access to the same basic tools - the challenge of the next century is to bring equity of access to technology in education so that all kids will be adequately prepared to be competitive in the global information economy.

Lester Thurow

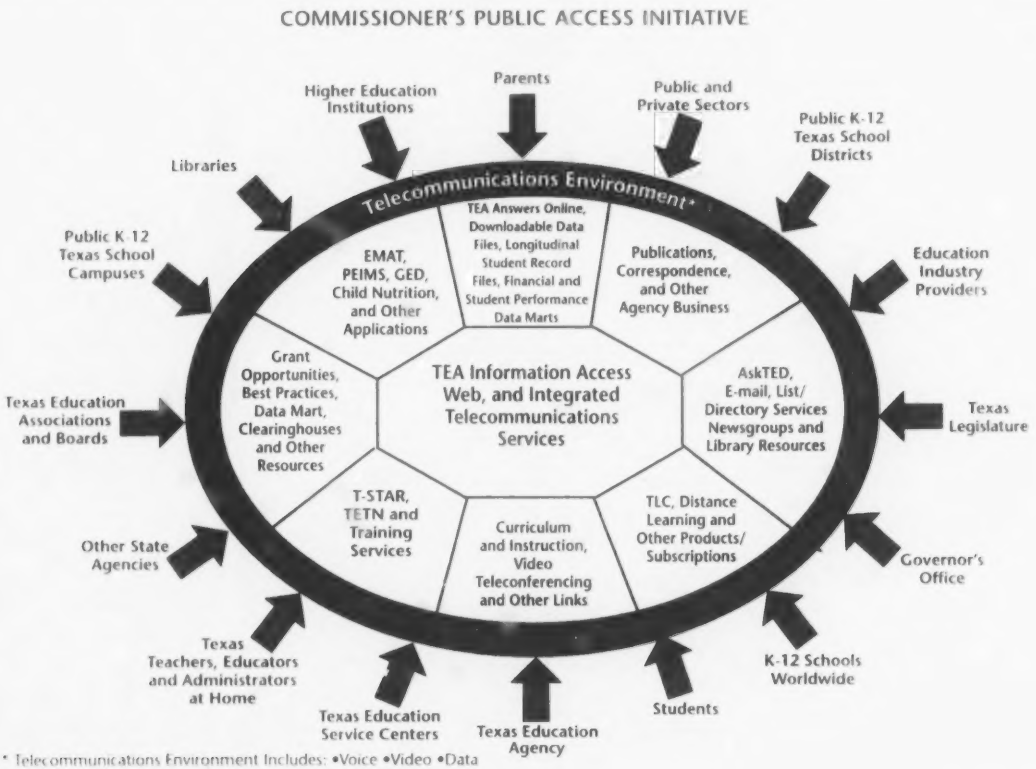
Providing access to technology and telecommunications resources on a statewide basis is an immense technological and financial challenge for the citizens of Texas. At 267,277 square miles, Texas has the second highest total land area in the nation. The population of Texas is estimated at 18.7 million, making it the second most populous state in the country, while the population density is estimated at 71 persons per square mile, making it the 30th lowest in the nation. By the year 2025, the Office of the Comptroller estimates that the state's population will have grown by 30%, totaling more than 22 million. Twenty percent of the projected population in the year 2025 will be younger than 14 years of age.

Texas currently has the second highest student enrollment in the country, with more than 3,800,000 students. By the 2000-2001 school year, the Texas Education Agency projects that Texas will be serving more than 4.1 million students.

The Texas public school system has the highest number of school districts in the nation: 1,043; and the highest number of individual school campuses: 6,875.

Texas has 17 local access and transport areas (LATAs) across 254 counties and, as a result of deregulation, the number of local exchange carriers (LECs) in Texas has exploded from a total of 59 LECs in 1995, to over 275 LECs in 1998. This has resulted in more choices for the user, but has created one of the most complex telecommunications landscapes in the nation.

The Commissioner's Public Access Initiative


COMMISSIONER'S PUBLIC ACCESS INITIATIVE
Higher Education Institutions
Parents
Public and Private Sectors
Public K-12 Texas School Districts
Libraries
Telecommunications Environment*
Public K-12 Texas School Campuses
Education Industry Providers
TEA Answers Online, Downloadable Data Files, Longitudinal Student Record Files, Financial and Student Performance Data Marts
EMAT, PEIMS, GED, Child Nutrition, and Other Applications
Publications, Correspondence, and Other Agency Business
Grant Opportunities, Best Practices, Data Mart, Clearinghouses and Other Resources
TEA Information Access Web, and Integrated Telecommunications Services
AskTED, E-mail, List/ Directory Services Newsgroups and Library Resources
Texas Education Associations and Boards
Texas Legislature
T-STAR, TETN and Training Services
Curriculum and Instruction, Video Teleconferencing and Other Links
TLC, Distance Learning and Other Products/ Subscriptions
Other State Agencies
Governor's Office
Texas Teachers, Educators and Administrators at Home
K-12 Schools Worldwide
Texas Education Service Centers
Texas Education Agency
Students
* Telecommunications Environment Includes: •Voice •Video •Data
Access is driven by application and need to know (FERPA)

The Commissioner's Public Access Initiative (CPAI) is the Agency's strategic plan for the implementation of the *Long-Range Plan for Technology, 1996-2010*. The Access Initiative includes projects supporting each of the Agency's three strategic directions: information access to educational content; business applications; and infrastructure.

The Commissioner's Public Access Initiative calls for the use of the:

- Internet
- Texas Education Telecommunications Network (TETN)
- education service centers' regional networks
- Texas School Telecommunications Access Resource (T-STAR)

These four areas form the building blocks of an integrated telecommunications services network designed to support the interactive exchange of data and information throughout the Texas K-12 public school community.

A wide variety of educational community stakeholders need access to information, the wealth of resources available through this initiative, and the telecommunications environment that provides that access. The Commissioner's Public Access Initiative is designed to serve the large, diverse population of our public school system, across the state's complex telecommunications service area boundaries, and its many miles.

The Commissioner's Public Access Initiative includes projects that will provide an infrastructure that enables public education stakeholders to readily access and use public education information for analysis, planning and decision-making. The initiative embodies the design, implementation, operation and maintenance of an integrated telecommunications network. The network is defined by constantly evolving content and services that students, teachers, parents, superintendents, legislators and business leaders need in order to make decisions, to educate, to plan, and to learn.

Public Education Data Warehouse

The creation of an infrastructure that enables public education stakeholders to readily access and use public education information is central to the Access Initiative. One very important project of the Commissioner's Public Access Initiative, the Public Education Data Warehouse (PEDW), will implement a data warehouse and multiple data marts that can be accessed from schools and offices statewide.

The Agency has solicited a great deal of input from interested stakeholders as part of the conceptual design process for the Public Education Data Warehouse and Data Marts. The initial data warehouse, designed and implemented as a proof of concept under the terms of the IBM Reinventing Education 2 grant, consists of student data extracted from Public Education Information Management System (PEIMS) and Texas Assessment of Academic Skills (TAAS) files. This data warehouse will support both the extraction of student-specific, longitudinal performance files and the creation of aggregated data for the student performance data mart.

Over time, other information will be added to the data warehouse to support the creation of additional data marts. Planning has begun on two additional data marts: a financial data mart and a best practices data mart.

Texas Education Agency Website

The Texas Education Agency website at http://www.tea.state.tx.us provides rich resources for all stakeholders in the public education community. Only two and a half years old, the site has grown to include more than 10,000 pages of resources.

Much of the information routinely requested from the Agency is now available via the Agency website. In response to requests from stakeholders, the ability to search and query that information has been significantly enhanced. As outlined in earlier sections of this report, access to content resources, professional development, and administrative support is available via the Agency website. Links to other sources are also provided to facilitate access to needed information.

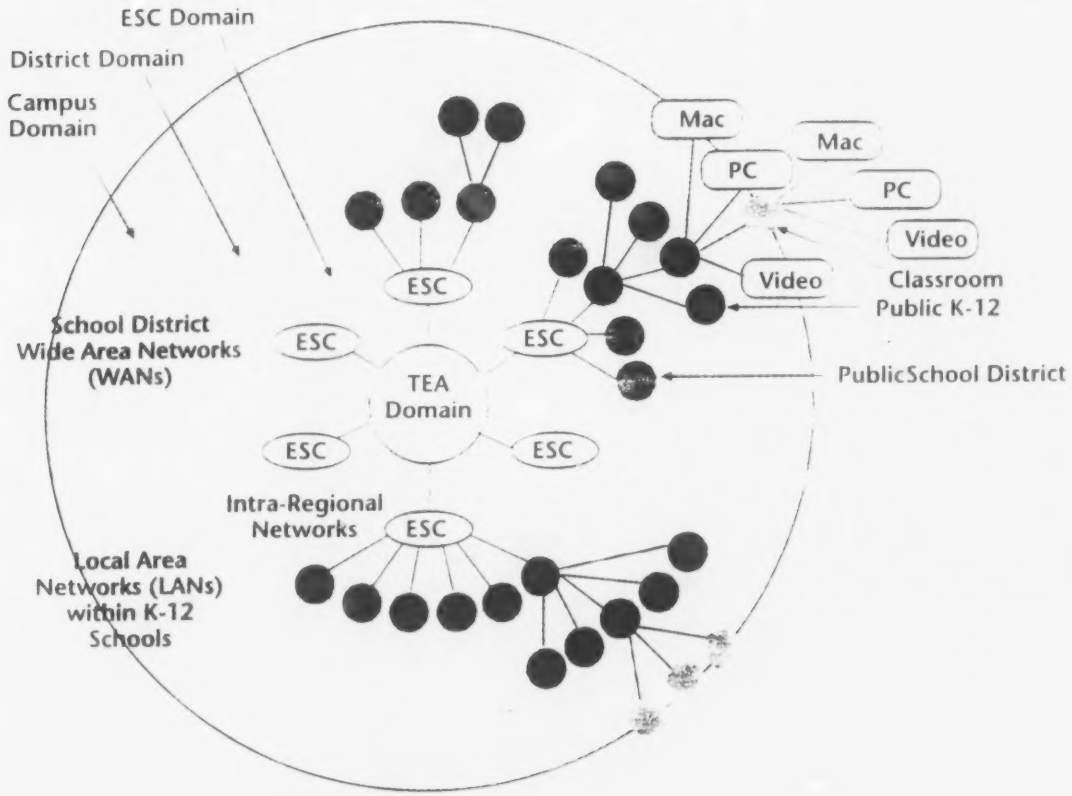
Much of the information from the Academic Excellence Indicator System (AEIS) is now available on the web. A customer-friendly, report interface to online Agency data, called AskTED, was developed to provide accessibility, via the web, to commonly requested, predefined reports and mailing labels. A web-based forum, TEA Answers Online, was developed so school districts and education service centers can get answers to questions pertaining to district/ESC financial management. The entire Accounting Resource Guide is also provided online so that the public can access the financial rules that school districts are required to follow. School districts can now order instructional materials through Education Materials (EMAT) online and publishers can track orders on a daily basis. The Agency will continue to serve the education community by increasing the amount and timeliness of accessible information.

Technology is for everyone. Just as...you teach reading to everyone and you teach social studies to everyone,...technology is not just for the chosen few.

Sharon Clark, curriculum coordinator
Waller ISD

Telecommunications Environment

INTEGRATED TELECOMMUNICATIONS SYSTEM



At the same time that the Agency is expanding the variety of the online information resources available to stakeholders in the educational system, the telecommunications environment that provides access to those resources is also expanding. The number of computers in school districts is increasing. Many of these computers are connected within a building through local area networks (LANs). Districts are forming wide area networks (WANs) to create connections between buildings. District WANs are being connected to the respective ESCs to form regional networks that include additional districts and other partners. As part of the Commissioner's Public Access Initiative, these regional networks are being connected to TEA through a statewide telecommunications infrastructure that supports the exchange of voice, video and data. This telecommunications environment includes Internet, videoconferencing and satellite delivery of information.

Computer Technology and Internet Access for Students

...the Internet is the blackboard of the future.

Richard W. Riley
US Secretary of Education

The *Long-Range Plan for Technology, 1996-2010* recommends a 3:1 student to computer ratio for the Texas public school system. Based on the desired student to computer ratio, the total number of computers necessary to serve the 3,800,000 students currently enrolled in Texas public schools is 1,266,666.

A variety of national surveys attempt to determine the student to computer ratio in Texas schools. According to surveys conducted in the 1996-1997 school year, Quality Education Data (QED) reports

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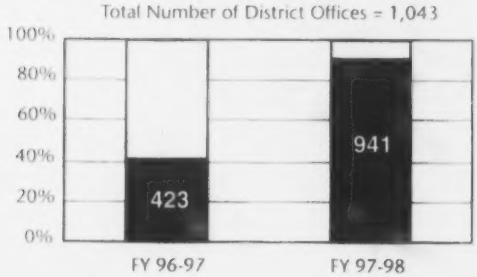
the student to computer ratio at 6.6:1 and the ratio of students to multimedia computers at 8.9:1. The same report indicates that 79.7% of Texas schools report online access. Market Data Retrieval (MDR) reports that, according to a 1998 survey, the ratio of students to multimedia computers is 12:1 and 83% of Texas schools have Internet access. Typically, surveys are sent to superintendents, principals, and/or technology specialists. When using surveys to collect information, 100% return rate is rare. The QED report is based on a 36% return rate from Texas and the MDR report is based on a 38% return rate, nationally.

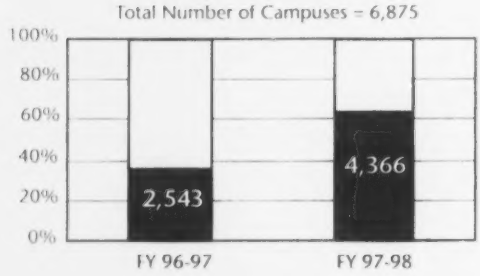
Several avenues are used within Texas to collect information regarding computers and Internet access in schools. The Telecommunications Infrastructure Fund Board includes district data in the TIF Base available on their website. A survey currently being conducted by the South Central Regional Technology in Education Consortia (SCR*TEC) in collaboration with the Texas Association of School Administrators will have data available in October. The Technology Needs Assessment, conducted as part of the Technology Integration in Education (TIE) grant application, provides information that will be available from TEA in the fall of 1998.

These sources indicate that more and more campuses are meeting or exceeding the state's goal of a 3:1 student to computer ratio. Information collected by education service centers indicate that campuses are installing local area networks and wide area networks to connect classrooms and buildings and are extending those connections to the Internet.

NUMBER OF SCHOOL DISTRICT ADMINISTRATIVE OFFICES WITH DIRECT CONNECTIONS TO THE INTERNET

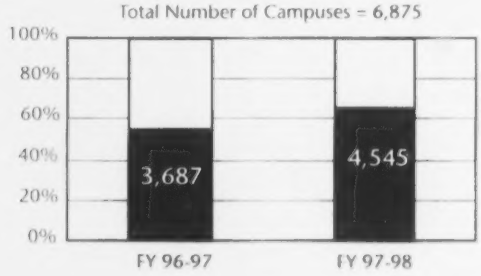


NUMBER OF SCHOOL CAMPUSES WITH DIRECT CONNECTIONS TO THE INTERNET



According to data reported through education service centers, 941 out of 1,043 districts and 4,366 out of 6,875 campuses are directly connected to the Internet. Approximately 4,545 campuses have local area networks. The data indicates that school districts and individual campuses are making great strides in gaining access to telecommunications services.

NUMBER OF SCHOOL CAMPUSES WITH A LOCAL AREA NETWORK (LAN)



Regional Networks

The state's education service centers are in the process of developing, implementing, and expanding regional networks within their respective regions. These networks provide the interconnection between the ESCs and all of the K-12 public school districts within their region. The Commissioner's Public Access Initiative supports and includes these ESC networks as part of the long-term information access paths supporting e-mail, Internet, videoconferencing and intranet/extranet services.

Many of the rural/remote areas of Texas do not have access to an Internet Service Provider (ISP). Without an ISP, educators cannot take advantage of the content and services provided through the Internet. As a result, the Commissioner's Public Access Initiative includes a provision to encourage ESCs to develop and expand their intra-regional networks to provide Internet access to Texas schools that do not have access to a local ISP. The Texas Education Agency also asked education service centers to accelerate their efforts to provide e-mail services to educators in their regions who request those services. As of the end of August 1998, ESCs are providing e-mail accounts to 48,340 educators. Growth in this service will continue as connectivity increases.

Additional information regarding regional networks and the services they provide is available in the Education Service Center section of this report.

Internet Access for Educators

Several statewide technology initiatives have provided key elements to the expansion of the telecommunications capabilities of school districts. In 1991, The state's electronic information system, known as the Texas Education Network, (TENET) emerged as one of the nation's first dial-up networks devoted to K-12 education. TENET began by providing dial-up service to the Internet in the state's major metropolitan areas, and Internet access through a 1-800 telephone number in the remote areas of Texas. Through TENET, a small number of the state's teachers and administrators had access to electronic mail, newsgroups, file transfers and directory services. Educators used this electronic information system to communicate with colleagues down the hall, across the campus, throughout the district, and around the world.

In the intervening years, the Internet has evolved into a more cost-effective alternative for conducting business and providing access to information. With the unprecedented growth of the Internet, connectivity affects not only technology but also the process of education. Connectivity to the Internet affords educators, students and community members a wealth of opportunities that are reflected in the State Board of Education's *Long-Range Plan for Technology, 1996-2010.*

As interest in the Internet began to sweep the country, TENET's popularity soared as well. This popularity forced changes in the network. These changes included deploying additional modem pools around the state in an effort to move users from the expensive 800-number modem pool to local modem pools. To allow more users access to the 800-number modem pool, users were restricted to 45 minutes of use per day. Initially, this alleviated some of the problems with access but increasing demand for access kept the 800 lines at capacity. In addition, the high cost of the 800-number modem pool continued to drain state resources.

Educators found that TENET's dial-up connections to the Internet did not provide access on demand. As a result, they were unable to integrate the information and services available over the Internet into the curriculum because they were unsure whether or not they would have dial-up access during class time. Districts and service centers began to install direct connections to the Internet. In 1995, the Agency awarded more than $1.6 million to school districts to establish direct connections.

More and more districts and campuses began applying for TENET accounts. However, due to operating system limitations, TENET was not able to provide accounts for more than 60,000 users. In comparison, there are 263,643 teachers and administrators in Texas public schools. Equitable access to education resources is a cornerstone of the *Long-Range Plan for Technology, 1996-2010* and of the Commissioner's Public Access Initiative. Although direct connectivity to the Internet was on the rise, access was not available to educators statewide.

With the passage of House Bill 2128 by the 74th Texas Legislature, the Telecommunications Infrastructure Fund and the Telecommunications Infrastructure Fund Board (TIFB) were established. Over the course of the next year, the TIFB created a plan and established a competitive grant program to assist Texas schools. Since then, the TIFB has funded direct connections to the Internet for more than 700 school districts across the state. These connections allow for on-demand access to the Internet and the World Wide Web (www).

In early 1997, the Agency, in cooperation with the General Services Commission, entered into an agreement to provide a reduced rate for dial-up Internet access for Texas educators. The high capacity delivery service is provided by Southwestern Bell Internet Services (SBIS) and is available to educators across the state in major metropolitan areas. Access is provided to many rural educators by Southwestern Bell Telephone Company through provisions of

HB 2128 which require the company to provide toll-free access to the Internet where there is no local Internet service provider. The SBIS Internet service was initially offered for $8.95 per month. The service was soon expanded to include electronic mail for $9.95 per month.

Additional Internet Service Providers offer a reduced rate for educators as well. Some districts with direct connections to the Internet are providing dial-up access to their teachers and, in some cases, to the community. At the same time that TENET's role changed from that of an Internet Service Provider to a content and staff development resource, the Agency was continuing its own consolidation of information telecommunications systems, technologies, content and resources.

With the growth of the TEA website, much of the information available on TENET is now also available on the TEA website, along with many additional resources designed to improve the performance of students, teachers and school administrators. For example, curriculum guides and professional development information dealing with the new Texas Essential Knowledge and Skills (TEKS) curriculum standards in the areas of English language arts and reading, mathematics, science, and social studies are available from the TEA website. In addition, the Sharing Technology Applications Resources with Teachers kit is available to assist educators in the implementation of the Technology Applications curriculum and its TEKS.

In August 1997, the Agency announced plans to phase out funding for TENET. Funding was significantly reduced as of December 31, 1997 and eliminated as of August 31, 1998. In June 1998, the University of Texas at Austin announced that TENET's mission and services were being restructured. The University of Texas Academic Computing and Instructional Technology Services will be taking over the technical operations of TENET after December 1998 and will continue to provide services at least through December 1999. Information about TENET can be found on the TENET website at: http://www.tenet.edu.

Texas Education Telecommunications Network

In 1995, the Agency, in partnership with the education service centers, established the Texas Education Telecommunications Network (TETN). The 21 charter members include the 20 ESCs and TEA. This network allows two-way audio/two-way videoconferencing as well as data exchange. TEA and ESCs use TETN videoconferencing sessions for cost-effective delivery of staff development and training sessions, to conduct meetings without the need to travel to distant locations, and for efficient information sharing. PEIMS and other data are also exchanged via the secure connections between the regions and the Agency.

The Texas Education Telecommunications Network is a key component in the telecommunications environment serving the educational community. Originally implemented with dedicated T1 connections between TEA and education service centers, TETN used three-fourths of the bandwidth for interactive videoconferencing and one-fourth of the bandwidth for data exchange.

During the summer of 1998, the videoconferencing equipment and software at all 21 TETN sites, and the multipoint control unit (MCU) located in the TETN hub were upgraded to provide a future path for migrating to Asynchronous Transfer Mode (ATM) technology. The new equipment allows users to take advantage of improved bandwidth management, speed matching, T.120 file sharing, network scheduling, and other advanced and enhanced features. Plans call for connecting the TETN network to the state's ATM network, TEX-AN 2000, as the General Services Commission completes installation and testing.

As a result of these changes, TETN now uses one-half of the bandwidth for interactive videoconferencing, on the premier channel, and one-fourth of the bandwidth for data exchange. One-fourth of the bandwidth is now available for additional videoconferences to be conducted on a secondary channel at the same time that videoconferences are being conducted on the premier channel.

A Primary Rate Interface (PRI) line has been installed in the upgraded TETN hub to allow outside entities to dial-in to TETN conferences. Additional public education stakeholders will be able to dial-in to a TETN conference and participate with the other members. This enhancement facilitates the interconnection of TETN with the ESCs regional networks and expands the capabilities to allow additional stakeholders to participate in the network.

The expansion of the TETN data communications services includes the implementation of a secure and reliable path for data collection from schools

and school districts through the ESCs. These data collections are necessary for the support of PEIMS and other TEA information services. The expanded TETN data communications capability forms an integral part of the telecommunications environment essential to the educational community.

The Commissioner's Public Access Initiative includes the upgrade and conversion of the TETN network to ATM. ATM is a widely accepted standard that allows a more efficient use of bandwidth that is necessary to support the projected increased use of the network for data transmission, videoconferencing, distance learning, and professional development services. Using the TEX-AN 2000 ATM system as a "backbone", TETN will connect with the regional networks being developed by the education service centers in order to create an integrated telecommunications system that serves public schools throughout the state.

Some of the information exchanged between the Texas Education Agency, the ESCs and schools is appropriate for wide dissemination to the general public via the open exchange made possible by the Internet. Some e-mail and data is appropriate to share only within the public education community via encrypted exchange over the Internet. Some of the e-mail and data traffic between educators may be of a more sensitive nature, e.g., student grades, Social Security numbers and performance appraisals. Due to security concerns, the Internet is not yet a viable option for exchange of this highly confidential information. An important feature of the upgraded TETN network is to provide dedicated interconnections between the Agency and the ESC regional networks that protect the exchange of the most sensitive information. The TEA/ESC intranet/extranet will use Internet technology and browser software to enhance and enable the use of online applications linked to specific TEA departments and divisions. The use of this familiar technology and software will minimize the need for training. The General Services Commission's TEX-AN 2000 project will provide a cost-effective transport system, or telecommunications "backbone", to facilitate Internet and intranet/extranet communications.

Texas School Telecommunications Access Resource

In the fall of 1991, the Texas Education Agency installed the first of more than 1,000 steerable satellite systems in school districts throughout Texas as part of the Texas School Telecommunications Access Resource (T-STAR). T-STAR is a statewide telecommunications initiative that provides one-way video/two-way audio satellite communications to school districts, regional education service centers and the Agency. These satellite systems, along with the T-STAR Network television studio housed in the William B. Travis Building in Austin, Texas, comprise the T-STAR Network.

With the installation of the T-STAR satellite system, Texas K-12 students and educators gained access to satellite-delivered for-credit distance learning courses, curriculum enhancement programming and electronic field trips, and professional development teleconferences from a wide variety of service providers across the country. Audiences can also tune-in to the professional development and informational programming from the Texas Education Agency that is broadcast over the T-STAR Network. Dial-up videoconferencing capabilities have been integrated into the T-STAR Network studio facility to allow for the inclusion of videoconferencing activities within the Agency's statewide broadcast programs. In many of the state's larger cities, TEA programming is also made available through the local cable system.

We tape videos off our T-STAR system, take electronic field trips and use it to train our school board and all of our administrators. Now we've opened it up to parents and our community members...The response has been terrific!

Jean Kemp, assistant superintendent
Belton ISD

The equitable access to information made possible through the use of satellite technology has had a profound, positive impact on students. That impact is particularly important for students located in rural/remote areas of Texas and those on campuses with limited financial resources.

I like to call satellite technology the great equalizer for small and rural schools.

Terry Timmons, superintendent
Abbott ISD

Migration of T-STAR from Analog to Digital

For the past seven years, the T-STAR network has provided school districts across the state with access to distance learning opportunities. The satellite industry is undergoing a major shift from analog

to digital service. It is possible to deliver as many as 10 to 15 digital channels with the same capacity required to deliver one analog channel, thereby lowering operating costs significantly. Many satellite-programming providers have already converted their satellite programming to a digital format. More and more satellite programming providers will continue to move their programming to a digital format. The T-STAR network must transition to digital in order for Texas schools to take advantage of these educational resources.

The T-STAR studio will broadcast programming from TEA in both analog and digital formats during a transition period that will give districts time to convert their T-STAR satellite dish to digital.

The steerable capability of the T-STAR satellite dishes allow school districts great flexibility in the distance learning opportunities from which they can choose. Districts can point the T-STAR dish toward whichever satellite is broadcasting the programming they desire. Because the directional or "pointing" accuracy required to tune-in digital programming is critical, many T-STAR satellite antennas will need to be adjusted. The low noise blanker (LNB) for Ku-band will need to be replaced in order to operate with the improved frequency stability that is required by digital signals.

Digicipher II digital decoder technology was selected as the format for T-STAR's transition to digital because it is the most widely used decoder technology; is based on standards used or planned for use by other state networks, educational broadcasters and PBS; and meets district requirements. District WANs and campus LANs can provide distribution to the classroom for distance education purposes. The digital format and protocols to be used for the T-STAR digital upgrade will be standards-based to facilitate the integration of satellite to WAN and LAN interconnections.

The Expanding Telecommunications Capabilities of Texas Schools

A lot of interesting things have happened in this century, most of them plug into walls.

Father John Culkin

In addition to the statewide efforts of the Texas Education Agency, districts and education service centers have increased efforts to expand technology infrastructure throughout the state. With funding from the Telecommunications Infrastructure Fund, the Technology Literacy Challenge Fund, the Technology Allotment, and other federal, state and local efforts, districts have greater access to the Internet and to satellite and videoconferencing networks.

Districts and consortia have implemented distance learning technologies, connecting schools with universities, community colleges, education service centers, libraries and other partners. As a result, many students have access to high school and college courses not available in their local district. Through the Texas Library Connection, students can access instructional resources that are not available on their local campus to support their distance learning activities. An increasing number of for-credit distance learning courses are being developed and offered by higher education.

Some K-12 schools located in rural/remote areas of Texas are finding it increasingly difficult to find certified teachers. As a result, more and more schools are looking to the solutions offered by technology and are expanding their infrastructure in order to offer for-credit distance learning courses. Correspondingly, the number of students who are enrolling in for-credit distance learning courses is on the rise.

Educators have access to advanced degree programs and a wealth of professional development opportunities from a variety of sources which allow staff development to occur on an as-needed, "just in time" basis. Installation of computers and networks, and access to the Internet, satellite, and videoconferencing capabilities have expanded the technological infrastructure of the Texas education system.

No nation can operate a 21st century economy without a 21st century electronic infrastructure, embracing computers, data communications, and other new media. This requires a population as familiar with this informational infrastructure as it is with cars, roads, highways, trains, and the transportation infrastructure of the smokestack period. Access to the media system, including computers, faxes, and advanced telecommunications, must be as free and easy as access is today to the transportation system.

Ian Jukes, associate director
Thornburg Center for Professional Development

Education Service Centers

Educator preparation in technology has been significantly enhanced through the education service centers. Teachers now have more training opportunities on technology in the classroom than ever before.

Mike Moses
Commissioner of Education

Education Service Center Regions of Texas

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Executive Summary

Education service centers (ESCs) are a key element in the public education system in Texas. ESCs provide a wide array of services to local school districts and the communities they serve. The *Long-Range Plan for Technology, 1996-2010* includes specific recommendations to education service centers to continue to provide a menu of services that support implementation of the Long-Range Plan and regional and local technology initiatives.

Education service centers have taken a leadership role in establishing and supporting regional networks, which are a critical component of the Commissioner's Public Access Initiative plan for an integrated, statewide technology system for voice, video and data. Regional networks are designed to meet local needs; however, through the inter-connection of these regional networks and the state telecommunications system, all stakeholders can realize the vision outlined in the *Long-Range Plan for Technology, 1996-2010*. Regional networks will ensure equitable access for all districts and campuses to the information and services delivered by the comprehensive, statewide telecommunications environment.

Technology Preview Centers and Training Programs were established at all 20 education service centers throughout the state to provide school districts with educational technology services that enhance efficiency, effectiveness and the performance of students, teachers and educators. Education service centers provide planning, consultation, professional development and technical assistance in response to district needs and in support of the *Long-Range Plan for Technology, 1996-2010*. These activities include but are not limited to:

Collaboratives and Partnerships

- ESCs facilitate regional technology advisory committees to ensure the establishment and maintenance of partnerships in local technology initiatives; develop instructional materials and services; and provide a forum for regional collaboration.

Regional Network Development and Operations

- ESCs implement regional e-mail services, support the establishment of regional networks, and facilitate related training for districts.

Technology Preview Centers and Training Programs

Education Resources Preview Centers

- ESCs provide orientation and access to state of the art technologies; general technical assistance to districts through brokerage of information; and, data about best practices in the use of software and hardware for the integration of technology into instruction and the administration of schools.

Training and Professional Development Services

- ESCs provide technology professional development that: is responsive to district needs; is appropriate for the integration of technology into the curriculum through the Texas Essential Knowledge and Skills; is sufficient for utilization of state approved electronic textbook applications; and equips educators with focused technology skills.
- ESCs provide information, training and technical assistance related to the Texas Library Connection.

Planning and Grant Development

- ESCs provide: training in the planning process; assistance in integration of technology into campus and district improvement plans; technical assistance in planning; and orientation to various planning tools.

Distance Learning Opportunities

- ESCs provide training on T-STAR, TETN, and the Internet and information on other means of receiving or delivering educational programming and professional development opportunities via distance learning.

Dedicated professionals in each regional education service center assist district and campus personnel in developing and maintaining the comprehensive use of appropriate technology in all aspects of instruction, administration, and communications. ESC technology staffs provide technical assistance for districts in the implementation of statewide technology initiatives. Through the support of the Technology Preview Centers, district personnel receive hands-on experience with the latest educational technology. They also receive training and staff development on the integration of technology into the curriculum.

This section, with reports submitted by each center, gives an overview of the services provided by education service centers and offers a look at each unique and diverse region of the state.

"STUDENTS FIRST"
REGION ONE
EDUCATION SERVICE CENTER

Region One Education Service Center
Edinburg, Texas • 956-984-6000 • www.esc1.net

The Region One Education Service Center encompasses seven South Texas counties: Cameron, Hidalgo, Willacy, Starr, Jim Hogg, Webb, and Zapata. More than 285,000 students attend schools in one of the 39 school districts in this nine thousand square mile area. According to 1997-1998 PEIMS reports, the student population increased by 11.1% over the past academic year making Region One ESC one of the fastest growing service centers in the state.

The student population of Region One ESC consists of 95% Hispanic students and 5% White students with 81% from "economically disadvantaged" households. A glance at these demographics could lead some to believe that academic success is out of reach for a great majority of these students and their school districts because of the "strikes" against them. However, this is not the case; students have proven that given the opportunity to excel academically, they will. The 1997-1998 Accountability Report released by the Texas Education Agency revealed 17 Region One ESC school districts received a "Recognized" rating (an increase of 8 districts from last year) and 2 "Exemplary" ratings—the highest rating honor bestowed by the Texas Education Agency. It is our primary goal at Region One ESC that every school district receive either a "Recognized" or an "Exemplary" rating by the state agency in the years to come!

At Region One ESC, we believe that access to technology resources is a right, and not a privilege, for the students in the schools served by the Region One Education Service Center. Our Technology Plan reflects the goals and objectives that make access to technology a reality for all students.

Teaching and Learning

It is the goal of the Region One Education Service Center (ESC-1) to provide school districts with the electronic instructional and curriculum resources necessary to meet the learning needs of today's students. To achieve this goal, a variety of services have been developed and existing services have been enhanced by ESC-1 and our commercial partners involved in ESCONETT. ESC-1 continues to develop new services and encourages educators to think "out of the box" when investigating ways in which educators can positively impact student learning. Utilizing technology, Region One ESC, is well on its way to making these changes in classrooms:

- Region One ESC staff members participated in the creation of TEKstar, a series of digital resources that teachers can use for lesson preparation and delivery
- utilization of ESCONETT, a high speed, high performance regional intranet for the K-12 environment

- initiation of a pilot project which provides Advanced Placement courses to students in rural and remote high schools with the use of videoconferencing
- implementation of a weeklong Web Camp for educators in which they learn to create websites to enhance student learning

Educator Preparation and Development

One of the more exciting capabilities of ESC-1 capitalizes on the concept of "just-in-time" professional development. With the deployment of one of the largest videoconferencing networks in any public sector, a teacher will be able to "attend" a workshop many miles away with just a click of a mouse. Through strong and mutually beneficial partnerships with public and private entities, ESC-1 is in a position to make the latest innovations in technology available to participating Region One school districts. ESC-1 was the first education service center to become a Regional Cisco Networking Academy to support high school teachers and students in the establishment of networking courses. ESC-1 has taken a giant leap forward by initiating activities and programs to enhance professional development:

- the establishment of a Cisco Networking Academy Regional site to support networking instruction at local high schools
- the completion of the newly constructed 35,000 sq./foot "Professional Development and Technology Center" for teacher training. This state-of-the-art facility is available for teacher training and is equipped with distance learning capabilities in each of the six meeting rooms
- the availability of multipoint videoconferencing equipment for delivery of instruction and training
- the development of partnerships with Lotus-IBM, Simon & Schuster, Cisco Systems and other commercial entities that allows schools to take advantage of greatly reduced product costs

Administration and Support

One of the objectives of Region One ESC is to assist school districts in operating more efficiently and effectively by providing technical support and professional training in the student and financial accountability arena. The information tools available through PEIMS Reports and AEIS Reports can be great assets to educators when gathering and analyzing data regarding student performance and district financial accountability. ESC-1 provides and assures that staff has the adequate resources and training to maximize these great technology tools.

- collaboration with districts to consolidate data transmissions, utilizing existing networks in a secure and economical manner
- development of specialized reports to increase data accuracy
- employment of in-house staff members with various levels of certification ranging from computer platforms to installation of fiber optic cable

Infrastructure for Technology

The flagship of ESC-1 technology services is the development and deployment of the regional network called ESCONETT. ESC-1 recognizes the need to develop skills and competencies in school staff members charged with the responsibility of establishing and maintaining infrastructure at the campus level. ESC-1 is dedicated to providing opportunities to support this belief. Achievements in the area include:

- deploying a model Internet Protocol (IP) network designed for voice, video and data traffic to schools
- training of school district personnel in areas of technology certification
- facilitating access to normally costly services and software at greatly reduced rates
- providing training and meetings designed to give district technology staff information and capabilities on specialized technology components
- providing network design, implementation and maintenance for schools

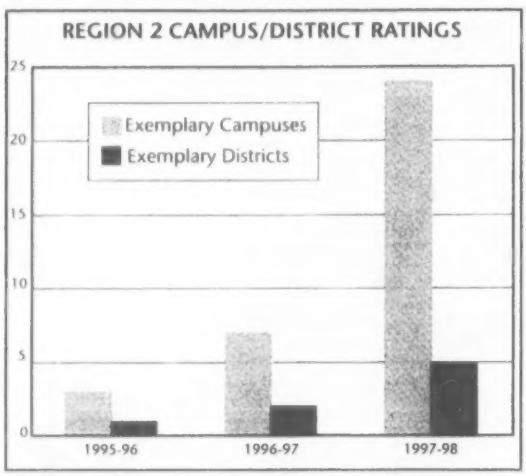
One Example of Technology In Region One Schools

- Santa Rosa ISD - By networking the community with their schools, videoconferencing opportunities are now available over their high-speed Internet connection. Every teacher has e-mail capability, every classroom has Internet access and high school students can take Advanced Placement courses via videoconferencing.

Education Service Center, Region Two

Corpus Christi, Texas • 512-883-9288 • www.esc2.net

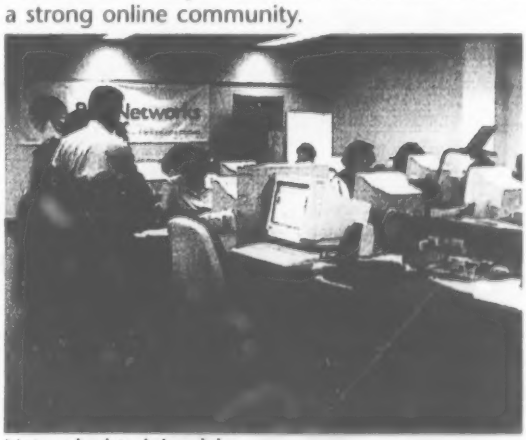
Education Service Center, Region Two (ESC-2) serves 42 school districts and four charter schools in an 11-county area, which is as diverse as Texas itself. Over 50% of the population is Hispanic, resulting in a unique and fascinating multicultural ambience. Included in the region is the largest working ranch in the world, the 6th busiest port in the U.S., three major U.S. naval bases and a national seashore. Corpus Christi is the 7th largest city in Texas. It fronts one of the most beautiful bays on the Gulf of Mexico, bordered by the longest barrier island in the world. A number of ecologically valuable bays and estuaries are found in the region. Even though the area's population is expected to double in the next 50 years, Region Two is almost exclusively rural, with significant agricultural production. Despite growing economic vitality, considerable challenges confront educators. The region is one of the poorest in the state, with more than 55% of the student population considered economically disadvantaged. In Nueces County alone, more than one-fifth of the population is below the poverty line. Areas of concern continue to be relatively low TAAS scores at some campuses, especially in math and writing, and the dropout rate at certain schools. However, significant gains have been made. For example, from 1994-1997, overall TAAS scores increased about 13% per year. From 1995-1998, the number of exemplary campuses increased eight-fold, and the number of exemplary districts increased five-fold. One of the objectives of ESC-2 is that the number of campuses rated recognized or higher will increase 5% annually. To help accomplish this, and as one of its four main goals, ESC-2 assists districts and campuses in applying technology to both instructional and administrative functions.



Teaching and Learning

A quick glance at the ESC-2 Programs and Services Book reveals a vast listing of the services we provide to local schools. From Accreditation to Visually Impaired/Orientation & Mobility Services, our programs address the needs expressed by our constituents and meet state requirements. Technology issues, in particular, are a focus for many. For example, our Technology Cooperative, which provides districts with on-site instructional and technical services, has witnessed increased participation; growing from 27 districts in 1996 to 33 for the 1998-1999 school year.

Our online presence has grown as well. Our website now averages approximately 500 hits a day. It has proven to be an efficient and thorough information dissemination media. In a recent Technology Contact Meeting, we received positive feedback concerning our online resources such as the Workshops and Jobs searchable databases. We track our website's activity and have noted that it is accessed as an instructional tool, as well. In at least one instance, a local district accessed components we built for TIFTech training. From 32 workstations in a remote location, a TIFTech team member was relaying knowledge and skills learned in the previous week's workshops to her local participants. This kind of utilization will likely increase as we continue to build a strong online community.



Networked training lab.

Educators and parents in our region have a complete Technology Preview Center at their disposal. It houses over 1,200 software titles and hardware items such as digital cameras, electronic white boards, and talking globes. Visitors have expressed their appreciation for the opportunity to examine and try out items before purchasing them. By popular demand, we now offer full-day workshops devoted to viewing and evaluating software. Teachers appreciate these workshops and administrators easily justify a release-day for such a worthwhile and structured experience.

Educator Preparation and Development

One of the ways we assist districts with implementation of the Texas Essential Knowledge and Skills, (TEKS) is through TEKStar. We understand how busy teachers are and how they can benefit from an electronic tool that contains model lessons and other resources. Nearly half of our region's districts participate. Training is well underway to help educators take full advantage of TEKStar's features.

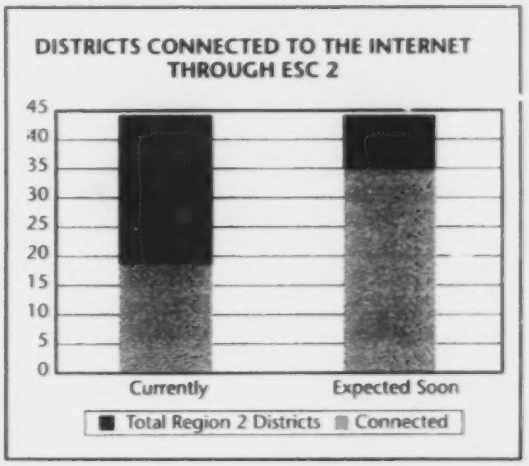
Our activity has increased in almost every area and our professional development offerings are no exception. Technology topics range from Building a Technology Plan to Creating a Web Site to Multimedia. All of our workshops are designed to meet the needs of our districts as expressed through surveys and comments. We boast two state-of-the-art computer-training labs. We have a demand for both platforms and, therefore, accommodate both the Macintosh and Windows user.

Throughout the past year, our consultants have made a conscious effort to cross boundaries and join forces to blend technology with the core subjects. This summer, we presented several TEKS & Technology presentations through a coordinated effort of subject area specialists and technology staff. They were met with great enthusiasm, as shown by one participant's comment on the evaluation form:

Thanks - I moved light years ahead in understanding. Can't wait to come back!

Administration and Support Services and Infrastructure for Technology

District folks frequently approach us for our assistance with technology planning and recommendations concerning network diagramming and hardware. There is a stepped-up commitment from all sides to continue building a strong, comprehensive, region-wide infrastructure. Through the assistance of grants like our region's recent TIE collaborative, our schools will be able to take strides towards meeting their technological and curricular goals. The future looks bright as we install the necessary hardware, like ATM switches, to allow for two-way audio/two-way video communication that will help us reach all corners of our region.



We are proud to offer top-quality Internet service to the school districts in our region. Services include Internet access and electronic mail for educators. One year ago, four districts used ESC-2 as a gateway to the rich resources of the Internet. Currently, 19 districts are aboard with another 16 expected in the very near future. We service over 3,300 e-mail accounts with that number climbing every day.

Currently, 19 districts use ESC-2 as a gateway to the Internet. Another 16 are expected to join in the near future.

Region III Education Service Center

Victoria, Texas • 512-573-0731 • www.esc3.net

The area serviced by Region III Education Service Center is known as the crossroads of south Texas because its physical site is centrally located between San Antonio, Corpus Christi, Houston, and Austin. Each of these metropolitan areas is between 100 and 130 miles from Victoria. The vast majority of students in the Region III ESC service area are in small, rural districts which have little or no access to the technological advancements found in most places throughout the state of Texas. Victoria County, the only metropolitan area in the region, is the smallest metropolitan area in the state. Victoria ISD is the largest Region III district, with approximately 15,000 students. Only four other districts, Wharton, Bay City, El Campo, and Calhoun, have between 2,500 and 5,000 students. Seven districts are K-8 or smaller, with enrollments of less than 100. One K-12 district has less than 120 students. The majority of the districts, scattered throughout 11 counties, have between 300 and 1,500 Average Daily Attendance.

Because of the size of the districts and the lack of resources available locally, many of the students in these small, rural counties and communities would not be able to access the educational experiences they need in order to compete within the state itself, let alone globally, without technology. The availability of advanced course work is limited, at best, because of a lack of financial resources, teacher availability, and/or time limitations. The economic background of these rural students is extremely varied. Students eligible for free and reduced lunch range from 11% in one district to 86.4% in another. The average for all districts is just over 47%. Of the approximately 55,000 students in the region, 7,500 are identified as students with disabilities. This does not include those students with mild dyslexia or those identified as "504 eligible."

Teaching and Learning

The Service Center publishes an annual catalog of services, which it makes available to every district. The catalog includes a wide variety of services to meet diverse campus and district needs. Some of these services are available to all campuses and districts throughout the region while some customized services are available after consultation with Region III ESC. The Center also publishes a catalog of training opportunities at least three times a year. The training catalogs are provided to every teacher and administrator within the ESC III area. They give detailed descriptions of workshops that are critical to implementation of the *Long-Range Plan for Technology, 1996-2010.*

The ESC ensured that training and technical assistance on the new Technology TEKS and the importance of infusing technology throughout the curriculum was provided to every district. The Center also maintains a Preview Center so that teachers and administrators can preview software before purchasing. It has also developed a portable Preview Center program that can be delivered to campuses. The portable Preview Center contains at least two Macintosh and two IBM-compatible computers which are loaded with software and transported to campus libraries for up to one week at a time. This ensures that teachers in outlying districts have access to appropriate information. The ESC also distributes, at little or no cost to districts, appropriate materials from the Texas Center for Educational Technology.

Educator Preparation and Development

Region III ESC spends considerable time providing training and technical assistance on the implementation of the Technology Applications TEKS to districts and campuses at regional training events and at on-site, "cluster" training events for several campuses. In addition, technology specialists have teamed with core curriculum specialists to help educators infuse technology proficiencies throughout the curriculum. Region III developed a TAAS data program which assists districts in the assessment of their strengths and weaknesses. ESC III relies heavily on technology to analyze the performance data of individual campuses and districts so that it can help those campuses and districts develop plans to address their needs. ESC III developed a portable

computer lab equipped with a network of laptop computers that is taken to districts, upon request, to facilitate the planning process. The portable computer network can be used by teachers, administrators, and/or school board members to examine data and identify strategies for the improvement of student performance. The ESC offers Internet training for teachers and librarians at the ESC and at individual sites throughout the region. Training for librarians on the use of the Internet and the Texas Library Connection has been a priority for the past two years. By providing training and technical assistance, ESC III hopes to ensure that students in even the most remote and poorest of locations will have access to the most current and appropriate information.

Administration and Support Services

The ESC provides leadership and technical assistance to districts as they select, acquire, install and use technology systems to promote efficiency and effectiveness in district operations. Region III ESC considers the development of a consortium to help our small, rural districts with professional consultation services; bidding and filing services; and the development of applications for the Universal Service E-Rate discount program to be one of its major accomplishments of the past two years. The Service Center contracted with an engineering firm to oversee this process, at no expense to the districts. In addition, the Service Center provided training to Telecommunications Infrastructure Fund (TIF) recipients on the four areas of the grant program: Technical, Foundation, Curriculum and Instruction, and Policy and Leadership.

Infrastructure for Technology

The ESC designed an online system on its website for districts to identify services, technical specialists, and workshops and is currently in the process of updating its media booking system. Teachers will be able to book media resources, 24 hours a day, via on-site paper forms, telephone or the Internet.

The ESC also developed a grant proposal in collaboration with 38 of its 40 districts, 16 private schools, and 3 rural public libraries to ensure: Internet library services at each campus; membership in the Texas Library Connection; and development of library system automation. The ESC provides consortia to address technical, on-site hardware and software needs; locally-identified teacher and administrator training needs; and technology planning facilitation. The ESC also provides leadership and direction to districts in the development of distance learning programs through its NET III project and is developing a regional media studio for the production and broadcasting of educational programming to member districts and homes with access to wireless cable facilities.

Region IV Education Service Center

Houston, Texas • 713-462-7708 • www.esc4.net

Seven counties in the upper Gulf Coast Area

Region IV Education Service Center serves the largest student and professional population in the state. Region IV ESC consists of 56 independent school districts and 16 charter schools in 7 counties in the upper Texas Gulf Coast area. Region IV ESC's educational community includes approximately 880,000 students, almost one-fourth of the state's total student population; and 61,000 educators.

The school districts in Region IV are as diverse as the landscape. From the sandy shores of Galveston Bay to the sprawling metropolis of Houston, districts range in size from a total enrollment of 28 students to more than 220,000 students, the largest in the state. Within Region IV, 45% of school-aged children qualify as economically disadvantaged. TAAS student achievement scores continue to be above the state average.

Teaching and Learning

Region IV Education Service Center:

- delivers distance learning programming for students, including high school courses, enrichment programs, electronic field trips, and primary-level bilingual instruction, to 65 campuses, representing 107,892 students in 25 districts
- develops and implements training sessions to assist teachers as they integrate technology into their specific content areas. More than 80 sessions were offered in 1997-1998.
- facilitates a study group to address the implementation of the new Technology Applications TEKS
- offers a training program to assist high school teachers as they begin teaching the new courses in Technology Applications
- provides 12 days of required TIFTech training for TIF grant recipients. Training was provided for 62 TIF grant recipients in 1997-1998.
- maintains an instructional media library consisting of 10,816 videotape titles, 377 laser discs, 247 CD-ROMs and 137 multimedia kits for loan to schools
- makes assistive technology devices and computer access peripherals available for loan to students with disabilities
- leads a regional collaborative to provide a Cisco Networking Regional Academy to schools participating in this program
- offers courses for Advanced Placement computer science teachers to maintain and advance their expertise in response to new College Board requirements

Educator Preparation and Development

Region IV Education Service Center:

- provides training to teachers and administrators in instructional technology, assistive technology and administrative applications. Approximately 200 training sessions were offered in 1997-1998.

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- provides access to approximately 1,500 instructional software titles for campuses and districts to evaluate in the ESC's Technology Preview Center.
- maintains an Assistive Technology Resource Center with state-of-the-art hardware and software for adapted computer access, augmentative communication facilitation, environmental access, and alternative solutions for vision and hearing impairments for training district and campus teams
- assists campuses and districts in their efforts to effectively integrate technology into their classrooms through planning. One hundred campus teams and 50 district teams participated in multi-day technology planning institutes during 1997-1998.
- delivers distance learning programming for teachers and administrators, including professional development workshops and information updates, to 65 campuses, representing 5,400 educators in 25 districts
- fosters the integration of technology into the classroom by providing extensive training to Region IV ESC trainers on the appropriate selection and effective use of technology as a tool in professional development settings
- coordinates a 20-region ESC/TEA network that provides statewide leadership to the other ESCs for training regarding assistive technology for students with disabilities, and promotes communication and collaboration between ESC assistive technology specialists and TEA
- models the use of technology in classrooms for teachers enrolled in other professional development institutes
- provides ongoing training and support for statewide technology initiatives, including T-STAR and the Texas Library Connection

Administration and Support Services

Region IV Education Service Center:

- provides a purchasing coop to assist districts in purchasing technology equipment. Seventy-two districts throughout the state purchased more than $29 million in technology during 1997-1998.
- provides the MIS NETwork Co-op to assist districts in implementation and network design
- facilitates the Technology Leadership Group, representing each of the 56 districts, that meets quarterly to share information and give leadership throughout the Region IV service area
- sponsors workshops presented by TEA personnel on data standards, PEIMS and the Accounting Handbook
- provides PEIMS workshops to districts via distance learning (InterAct)
- assists schools and districts with data disaggregation
- established and maintains a helpdesk for student and business administration software, utilized by 27 districts, statewide

Infrastructure for Technology

Region IV Education Service Center:

- provides Internet access to 42 districts and more than 700,000 students through ESC4.Net
- provides, with the General Services Commission, one of the five Point(s) of Presence (POPs) in the state to deliver DS-3 connectivity to the districts
- offers router maintenance, spare equipment and technical assistance to ESC4.Net districts
- provides e-mail and web hosting for all districts
- maintains expertise to assist schools and districts in network management and design, Internet connectivity, and hardware and software support
- maintains eRegistration to allow customers to register for professional development electronically via the web
- facilitates the Videoconferencing Steering Committee that will guide the implementation of a regional videoconferencing network

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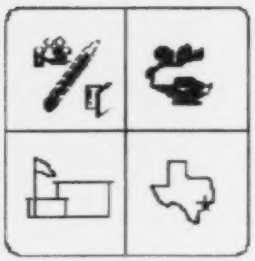
Region IV ESC provides our district with timely information on changes in technology, updates on state initiatives, TIF and E-Rate. Thank-you Region IV!

superintendent
Region IV district



Region 5 Education Service Center

Beaumont, Texas • 409-838-5555 • www.esc05.k12.tx.us

Region 5 Education Service Center serves 164 public school campuses in the southeast Texas area, which is composed of Jefferson, Orange, Hardin, Jasper, Newton and Tyler counties. These counties are predominantly rural areas with few high-wage employment opportunities. The petrochemical and petroleum refining industries in Jefferson and Orange Counties provide most of the opportunities for better wages. Students in the area fall into two major cultural groups: 61% white and 32% black, with a small Hispanic population and an even smaller Vietnamese population comprising the balance of the region's approximately 88,000 students. Though Region 5 boasts an attendance rate of approximately 95%, efforts are being made to address the dropout rate of 1.7%.

From its inception in 1967 as a service center for the eight school districts that make up Orange County, to its present role as the regional service center, Region 5 has expanded its outreach and the variety of services that it provides. The 12% teacher turnover rate and the shortage of certified teachers in the areas of advanced science, mathematics, and technology-related courses are particular concerns.

Teaching and Learning

Technology assistance has been offered by the Education Service Center since the fall of 1991. Since then, the Center has implemented a state-of-the-art Technology Training and Preview Center which includes two multi-platform training classrooms and one designated software preview room that is used informally for both viewing and self-paced training.

Educator Preparation and Development

The Technology Assistance program continues to increase the number and variety of workshops offered and has expanded the nature of training to include implementation of technology into curriculum areas, using the Technology Applications TEKS skill sets. The Region 5 Education Service Center has developed a cadre of district technology support staff who serve as campus resources and help local instructors to integrate the use of technology into the curriculum.

Regularly scheduled user support group meetings offer valuable follow-up and review sessions, which enhance the capabilities of these local resources. Saturdays have become popular meeting times for these educators, who find it difficult to obtain a substitute to attend such sessions during regular school hours.

Administration and Support Services

The Technology Assistance service has also increased the number of on-site visits for technical assistance and training in the use of satellite systems. The Region 5 Education Service Center continues to videotape and distribute TEA programming broadcast over the T-STAR Network throughout the year, and provides access to a viewing site for local entities involved in training via satellite. Monthly satellite technology user group meetings offer the opportunity and time for training and the sharing of ideas and strategies.

The Technology Assistance project also helps districts update their technology plans to include the design of local and wide area networks that will be compatible with the regional network. By helping districts to secure grant funding from a variety of sources, 29 out of 30 districts have now implemented networks that provide Internet access from a hub located at the ESC, and 16 local entities have received distance learning classrooms. Follow-up training, especially TIFTech training, enables recipients to obtain the skills needed to become a mentor/trainer for their local districts and other grant recipients.

The regional network, called the South East Texas Telecommunications Education Network (SETTEN), has expanded to include all but one local ISD as a partner, providing over 2,700 educators with e-mail and Internet access and offering network support to the Texas Library Connection participants.

Infrastructure for Technology

The Region 5 Education Service Center continues to support a hardware purchasing cooperative and is developing an assistive technology lab whose aim will be to match student needs with the appropriate assistive technology or device in the most cost-efficient manner.

With the implementation of the Commissioner's Public Access Initiative, and continued state and grant funding, more training will be delivered to our districts in non-traditional ways. Districts will become more efficient and effective because they will be able to share teachers, thus addressing the concern about a shortage of certified teachers; and students will be able to gain credit for high school and college courses that were not available previously. With expansion of our regional network, data from the Texas Education Agency will be accessible to more people so that effective decisions can be made regarding the needs of teachers and students. As a result of access to this wealth of data and tools, teachers will be better prepared and all students will have a greater opportunity to achieve.

Region VI Education Service Center

Huntsville, Texas • 409-295-9161 • www.esc6.net

Region VI Education Service Center is located in beautiful southeast Texas in the piney woods, 60 miles north of Houston. Region VI encompasses 12,400 square miles that includes 15 counties, 60 school districts, and various private schools serving over 125,000 students and over 11,000 educators. The region is rural and is richly multi-ethnic and reflects the trend of growing diversity that is common in much of the state. Sixty-four percent of the districts are special-needs districts, with over 45% of their students eligible for free and reduced lunches. Nevertheless, the districts in Region VI are consistently increasing the achievement levels of their students as measured by the TAAS tests. A varied economy includes agriculture, petroleum, energy, forest, manufactured products, two major state universities and the state prison system. Recreation and tourism are important in the region which includes the Sam Houston and Davy Crockett National Forests, part of the Big Thicket National Preserve, and Lake Livingston.

Teaching and Learning

Region VI assesses the needs of its students and staff annually and offers a wide variety of services to support the efforts of its districts to improve student performance. The catalog of services includes support for each state technology initiative and for additional needs expressed by regional district personnel. Services in the area of teaching and learning are designed to provide support and training in such a way as to empower districts to implement and integrate technology resources. TechNet, a two-year training-of-trainers in the area of technology, has created a growing base of educators who can provide just-in-time training and support at the campus level as needed. The program increases the impact of the staff development provided by technology specialists. TechNet graduates have, in turn, supported and trained over 10,000 students and teachers in the last three years.

In 1997-1998, districts participated in a planned and focused, long-term look at technology planning and evaluation, learning from experts brought to the area. An up-to-date Preview Center is maintained on-site at Region VI to provide the facilities for training and for the evaluation of hardware, software and other technologies. This year, the Preview Center has doubled in size to include two labs and a distance learning center in order to provide additional services to schools. Districts receive assistance with the implementation of TEKS in the form of software, training, technical assistance and materials.

Educator Preparation and Development

Professional development programs for educators address a variety of technology needs. In addition to the TechNet training-of-trainers, hundreds of educators have gained skills from TIFTech training with additional training planned for the coming year. This program encompasses use of the Internet and other resources, integration of technology resources into the curriculum, and development of technical skills to support those resources. The program reaches teachers, technology staff, administrators and policy/decision-makers. Technical training, such as Novell Administration and Cisco router training, continues to be offered by technically-certified ESC staff.

Administration and Support Services

Region VI takes "service is our middle name" seriously. The support that is offered includes: information dissemination, conferences, on-site consulting, training, assistance with bidding and

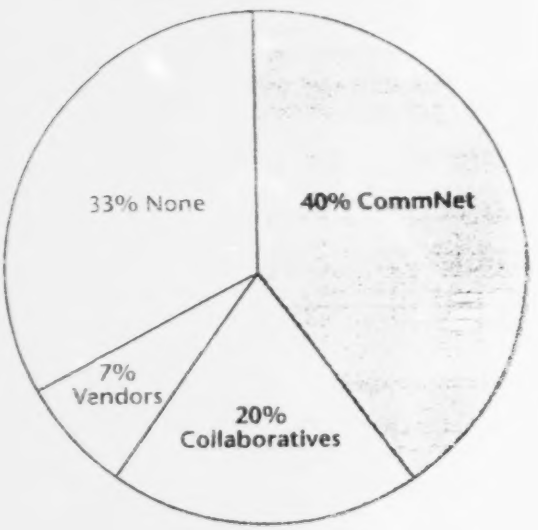
purchasing cooperatives, administrative software and services, and other cost-effective services, many of which are not readily available to schools in rural areas. PEIMS services are offered to schools as well. Both student and administrative software is used to perform administrative and support services. Training for business managers, data processing staff and administrators is provided. The seventh annual Regional Technology Conference, hosted by Region VI in collaboration with Sam Houston State and Texas A&M University, was held in November of 1998. This conference, which draws over 400 educators annually from all counties in the region, brings opportunities to learn new and emerging technologies and new educational and administrative practices. Technology service and repair is offered so that cost-effective equipment pick up, repair and delivery is available to schools.

To support these services, Region VI maintains on staff a technology specialist, a library technology specialist, and a distance learning specialist. Two systems engineers and one networking specialist hold certifications as a Certified Novell Instructor (CNI), Master CNE, and Certified Novell Administrator. Additional staff with expertise in a variety of areas complete the technology support staff of Region VI.

Infrastructure for Technology

Each year the number of districts with an infrastructure for communications has increased. CommNet, the regional network in Region VI, includes more districts each year that are directly connected to Region VI for Internet access, e-mail services, videoconferencing and distance learning. This has been made possible through TIF grants to schools, a TIE grant to a collaborative of 58 school districts, and individual district funds. Region VI staff provide design, cooperative purchasing, installation, maintenance and training to support connectivity at the campus-, district- and regional-levels. At the end of the 1997-1998 school year, 24 districts were connected to CommNet. The number continues to grow.

REGIONAL CONNECTIVITY



Forty districts have a Point of Presence directly connected to the Internet. A distance learning collaborative has been established to serve administrators, teachers and board members. This collaborative will grow to include other entities and will offer distance learning services to educators and students as we move ever closer to the new millennium.

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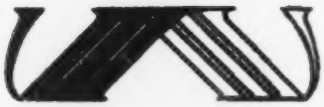


Region VII Education Service Center
Kilgore, Texas • 903-984-3071 • www.esc7.net

Region VII Education Service Center is located in Kilgore, Texas, and is known as the "Capital of the East Texas Oilfield". Services are provided to 96 districts in 17 counties. The diverse economies of the region include oil and gas, farming, ranching, manufacturing, education, medicine and health care. Historically, the region is recognized for wood products, gas and oil production, roses, sweet potatoes, tomatoes, onions, azaleas and dogwoods. Some are surprised to learn that many businesses are internationally recognized for world-class products and services in the manufacturing and telecommunication industries.

The 96 school districts, comprised of 68 rural and 28 urban districts, include 160,000 students, 20,000 staff members and 11,000 teachers. Forty percent of the students are economically disadvantaged. Student achievement results continue to improve. The percentage of students passing TAAS in spring 1997 exceeded the state average in all areas, with the exception of African-American and Hispanic populations who trailed by a few percentage points. Equitable access to excellent educational resources through Internet connectivity represents a challenge because the telecommunication infrastructure of the region includes four Local Access and Transport Areas (LATAs), and 11 local telephone companies. All 96 districts received TIF grants and 52 districts are connected to the regional network, ESC7Net, as of the fall of 1998.

Teaching and Learning

Region VII ESC provides an array of technology training and support services to implement the *Long-Range Plan for Technology, 1996-2010* through regional and local technologies. The following list includes examples of some of the information disseminated and some of the staff development offered on technology integration into the curriculum, including the TEKS and expectations for technology proficiencies for educators and students.

Region VII ESC:

- delivered START kits and conducts training on the START kit; the Technology Applications TEKS; language arts and reading TEKS; developed a computerized test generator for TAAS objectives and graphing calculator tutorial training modules for the web; and online Braille books for use by students with visual impairments
- distributes information and offers training related to the integration of technology into district improvement plans; the best practices for technology planning; and the use of technology in teaching and learning through workshops, advisory meetings and planning meetings
- promotes technology events and conferences through newsletters, e-mail, and the ESC7Net website
- participates in partnerships to develop instructional materials and services such as TEKStar and the Principal's Leadership Academy
- provides facilitated preview of learning resources; access to the Preview Center; and labs for training related to software, textbook adoptions, and state technology initiatives, including the Texas Library Connection. A Special Education training lab is equipped with many assistive technology devices and offers a software library.
- assists schools in developing and implementing strategies to meet the performance descriptions in the TEKS through computer-based model lessons and activities designed around TEKS for Leaders
- conducts workshops and planning meetings to provide technical assistance for campus and district technology plan development and for integrating technology into district improvement plans
- conducted 295 workshops to train 6,000 teachers and administrators in technology usage in 1997-1998. Sixty-eight districts contracted with ESC 7 for TIFTech training.

Educator Preparation and Development

Region VII ESC:

- established and maintains partnerships with software and hardware vendors, colleges and other education service centers to provide support to local technology initiatives
- offers professional development related to technology integration into: the TEKS, teaching and learning, instructional management, professional development, and administration
- offers professional development via distance learning, distributed learning, website resources and other means on topics such as: the collaboration with Texas Tech Development of Principal Leadership Assessment Program and a research paper on African-American student achievement prepared by field service agents
- is developing a Region VII ESC campus/district planning program
- identifies websites suitable for student research and data-gathering, and posts links from ESC7Net to those sites
- conducts staff development for local personnel responsible for technical support including Novell, Windows NT, and trouble-shooting workshops

Administration Support and Services

Region VII ESC:

- assists schools and districts with data disaggregation and effective district and school improvement planning
- distributes the TEA PEIMS Edit and Reports Plus programs to districts; processes the PEIMS data submitted by districts and forwards it to TEA; and produces the reports from PEIMS Edit and Reports Plus for districts, to improve data accuracy
- Sponsors a number of workshops, presented by TEA personnel, on the *Attendance Accounting Handbook* and PEIMS
- conducts training programs on the use of technology resources in all aspects of school operations, such as: planning and operating RSCCC over local area networks; integrating classroom grade book and attendance modules for teachers' classroom use; using the TEA website for accounting; and using the CD-ROM version of the *Financial Resource Guide*
- facilitates training for administrators on TEKStar, Internet use, and DAVE through Region VII Principal networks
- developed a TAAS charting program to display the last three years of TAAS results by student groups at district-, campus- and grade-levels, and by objectives for math, reading and writing
- provides technical assistance and support services to districts using disaggregated TAAS data from the Region VII ESC charting program
- developed a computer program to analyze current TAAS data to identify campuses that may not meet next year's increased accountability requirements. This provides time for the campuses to take corrective action.
- provides accurate and timely access to awarded-bid categories for educational entity members utilizing the Internet

Infrastructure for Technology

Region VII ESC:

- designed, installed, and operates the telecommunications infrastructure for the regional network, ESC7Net, which serves 56 Region VII districts and colleges, utilizing an ATM backbone for data, voice, and video services
- maintains expertise to assist schools and districts in technology planning, network management, network design, technology integration, Internet connectivity, distance learning, videoconferencing, and hardware and software support
- provides forums for regional collaboration through advisory meetings, grant writing, and planning meetings

Education Service Center, Region 8

Mount Pleasant, Texas • 903-572-8551 • www.esc8.net

The area served by Education Service Center, Region 8 is comprised of 11 counties located in northeast Texas. It is an area characterized by an abundance of pine trees and lakes. All but a handful of the 48 districts served by Region 8 are located in small, rural farming communities with student populations of less than 2,000. In fact, the total student population for the region is less than 60,000. Over 45% of the students are considered economically disadvantaged. However, Region 8 has the highest average-attendance rate in the state with a dropout rate in the lower third. Region 8 has the lowest total operating expenditures per student and yet TAAS scores rank among the highest in the state. Only two schools of the 148 served by Region 8 were considered low-performing. While Region 8 teachers' salaries are the state's second lowest, on average, Region 8 enjoys the lowest percentage of teacher turnover in Texas and one of the highest percentages of teachers with advanced degrees. Technology is an integral part of school districts' operations. In summary, schools in Region 8 are a picture of stability and achievement. Every dollar is stretched for its maximum value and technology is highly valued.

Region 8 ESC Technology Team: Pat Crawford (seated), *left to right*, Patti Duke, Don Mellody (technology director), Kenneth Goodson, Alison Froneberger, and John Kelsey.

Teaching and Learning

Our number one goal at Region 8 is to provide "Quality Service for School Improvement." All Region 8 employees strive to become leaders in the creation of an educational environment where all students, educators and community members can take full advantage of technological resources to develop the life-long learning skills necessary to be productive in an information-driven, globally-competitive society. To aid in technology integration, every Region 8 employee keeps a technology competency portfolio. Interdepartmental teams assist with training and coordinating Preview Center and Textbook Adoption Center activities. All departments offer a variety of workshops that focus on: technology integration into the curriculum, TEKS, school administration, assistive technology, automated library programs, technology planning, and more. Brochures, newsletters, monthly catalogs and our website highlight opportunities for training and other services.

Region 8 hosts a technology fair with exhibits showing the latest hardware and software, and workshops by area teachers demonstrating proven classroom techniques for integrating technology and the Internet into the curriculum. During the 1997-1998 school year, Region 8 sponsored technology planning workshops and a TIE Symposium. Technology planning teams from every district were given software and numerous outlines for effective planning, and previewed some of the best strategies in the state for systemically integrating technology into the curriculum.

Region 8 employees working on Technology Portfolios.

Educator Preparation and Development

To effectively meet the needs of diverse district staff, Region 8 developed a variety of approaches to educator preparation and development. A Technology Leadership Academy (TLA) helps teachers integrate technology into the curriculum. To meet the requirements of the training specified in the TIF and TIE grants awarded to the Northeast Texas Regional Education Telecommunications Network (NTxRETN), TLA was adapted to include the use of the Internet in the curriculum. The grants call for one Master Teacher from each school to

receive 10 days of training that covers everything from basic troubleshooting skills, to Internet basics, to curriculum integration. After completion of TLA, Master Teachers participate in one of six clusters of five to eight districts each that provide district-level staff development.

Many technology workshops take place at Region 8 that assist educators with integrating technology into the curriculum.

Distance learning will aid the Service Center in providing "quality service for school improvement." Region 8 is in the process of procuring distance learning equipment for the 47 districts, two universities, and three community colleges involved in NTxRETN. Traditional boundaries among schools are being eliminated.

Administration and Support Services

The Data Processing and Instructional Technology departments both provide a wide range of services for administrative support including Novell support contracts; PEIMS training and support; RSCCC and RSCCC 2000 training and support; electronic grade book services; Windows NT training; and more. The Data Processing department works especially hard preparing districts that utilize the RSCCC system for student and business management for the changeover to RSCCC 2000. They provide support in areas such as hardware recommendations for running the new software, beta testing, installation and configuration, training and technical support. The Instructional Technology department works extensively with district administrators in the area of technology planning and provides support for districts applying for E-Rate program discounts.

Technology helps me individualize the learning program. It also helps with learning styles. Some students are auditory (learners), some visual, some tactile. Technology helps meet all these needs and makes reading and writing come alive.

Nancy Hudson, bilingual second grade teacher
Mount Pleasant ISD

Infrastructure for Technology

The Northeast Texas Regional Education Telecommunications Network was formed just over two years ago as an outgrowth of a regional technology initiative sponsored by the Region 8 Instructional Technology Division. Superintendents from around the region met to discuss their vision of technology, including the products and services that could be offered and how these products and services could be delivered and paid for. In March of 1996, 42 school districts, 3 community colleges, 2 universities and Region 8, signed a formal agreement creating NTxRETN. In 1997, NTxRETN received a TIF grant in excess of $2 million and a TIE grant of more than $1.5 million for Internet connectivity and teacher training. In the past year, five more schools have joined the consortium and the collaborative was recently awarded a second TIE grant for distance learning. By year's end, every school in the region that is a NTxRETN member will have a direct Internet connection. At least one Master Teacher from every school will have received more than 75 hours of training in using the Internet in the classroom, creating a human infrastructure as well.

Alison Froneberger, technology consultant, works with Master Teacher, Joni Belloso on previewing software.

Education Service Center, Region IX

Wichita Falls, Texas • 940-322-6928 • www.esc9.net

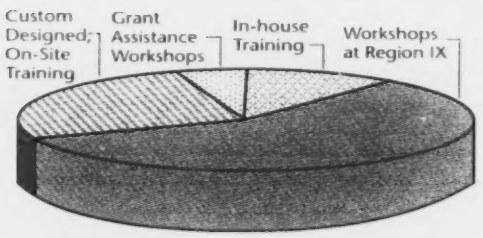
The area served by Education Service Center, Region IX is known for its rich history. In the 1880's, on the frontier of the Wichita River, the town of Wichita Falls emerged. It was named after the Indian word "Wee-Chi-Tah" and a small waterfall. Rich in heritage from cowboys and Indians, to the railroad and the oil boom, the frontier tradition lives on. This tradition is responsible for the pioneer spirit and "stick-to-it" tenacity of our residents.

Region IX Education Service Center serves 41 school districts in 12 counties with a student population of more than 40,000 students. The Region IX service area encompasses 10,417 square miles of north central Texas from its centralized Wichita Falls location, serving diverse student groups representing both urban and rural populations. Approximately 40% of the students are identified as economically disadvantaged. TAAS student performance exceeds the state average in all areas. Seven Region IX districts and 22 campuses (19%) were awarded exemplary school status for the 1997-98 school year. The mission of each Region IX ESC employee is "ACEE" (Assist Campuses with Excellence and Equity).

Teaching and Learning

The Region IX Technology Department considers planning to be an integral part of assisting school districts in the teaching and learning process. Efforts to provide leadership to districts in the area of long-range technology planning include multiple-day seminars focused on the development of campus and district technology plans that meet TIF, TIE, E-Rate and state requirements. Technology staff members continue to train curriculum specialists

1997-98 TECHNOLOGY WORKSHOPS



at the Service Center so that they appropriately integrate technology into their training activities. TEKS training is also offered in specific curriculum areas. Numerous workshops are offered to district personnel that focus on integrating technology in a way that enhances instruction. With the curriculum and instruction strand of the TIFTech training, Region IX technology staff successfully trained 21 TIF-certified trainers. These trainers will, in turn, train local staff. We were fortunate to be part of the ONLINE Consortium that gave us additional opportunities to train instructional staff in multiple districts. Our technology courses offer technical skills training and training in technology integration across the curriculum. Continued technical assistance is provided to all Region IX schools on utilizing T-STAR satellite-delivered distance learning opportunities such as for-credit courses, curriculum enhancement programming and programming from TEA. Our Technology Preview Center provides a centralized location where instructional staff can preview software.

Educator Preparation and Development

Our recently completed technology training labs are utilized extensively for planning, developing technical skills, and enhancing curriculum/technology integration. In addition to regularly scheduled workshops, technology specialists travel to districts to provide on-site training and technical assistance. Upon request from school district personnel, consortium members, or ESC staff, we offer custom-designed technology workshops to meet specific needs. Examples include Internet Skills for Librarians, Intro to Windows 95 for business office personnel, and Internet Access to the TEA website for district business directors.

Administration and Support Services

To promote local district awareness of technology resources, the Region IX Technology Department, in conjunction with the local chapter of TCEA, sponsors an annual Technology/Media Conference. This annual event showcases emerging technologies and provides opportunities for sharing effective methods. Our Preview Center houses hardware and software from a wide cross section of vendors. The technology staff assists local districts in writing and reviewing technology bid specifications.

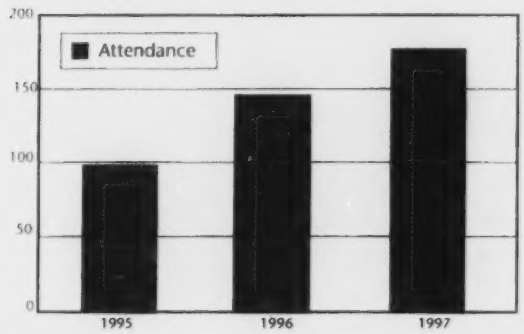
Region IX staff assisted local ISDs to update their technology plans for grant applications.

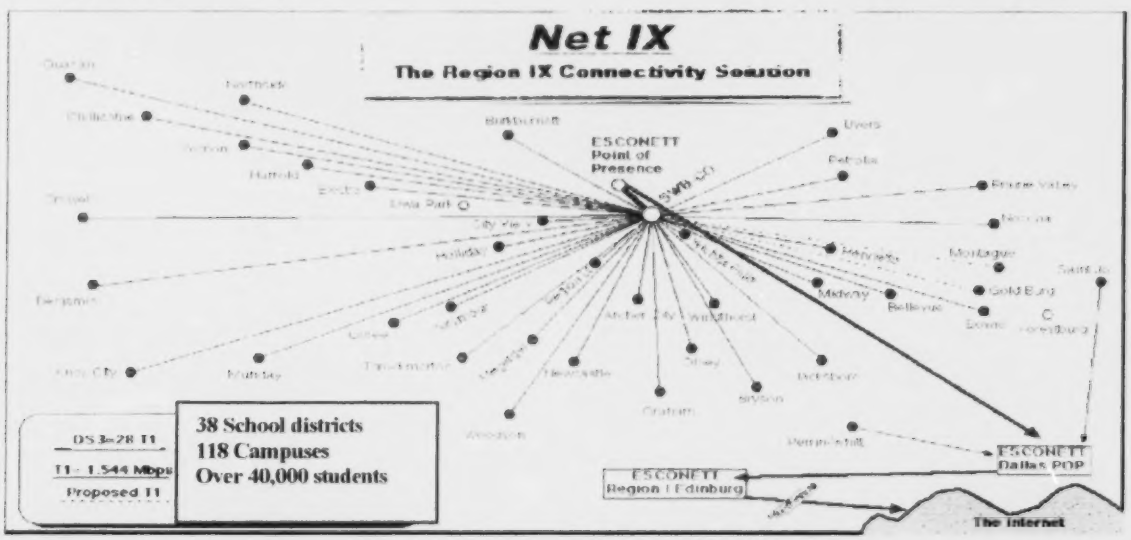
Administrators across the region receive training on PDAS software to enhance appraisal efficiency. Region IX ESC offers our districts remote troubleshooting and other technical assistance via the telephone Monday through Friday, 8:00-5:00. Grant assistance workshops offered by the Technology Department have been successful as evidenced by 35 school districts receiving TIF grants, to date. Our most recent grant application resulted in the awarding of over $1 million of TIE money, which will be used to provide distance learning via two-way interactive video.

Infrastructure for Technology

Region IX's website serves as an information focal point for educators across the region. Staff communications utilize e-mail for in-house and external communications. Electronic databases are used for ESC records management, ranging from workshop information and itineraries, to travel. One technology staff member devotes at least 50% of her time to assist staff in becoming "technology competent". The technology staff continues to keep abreast of changing technologies through participation in seminars and conferences. We rely heavily on our Technology Advisory Committee for recommendations for workshop offerings, needed changes, and suggestions for improvement. The NetIX project is a connectivity solution designed to provide an affordable method of Internet access for the school districts in Region IX. The NetIX Project has successfully connected 27 school districts as well as Region IX ESC to the Internet via ATM technology. A total of 38 school districts will be connected this year. With our recently acquired TIE grant, this growing network will be used to deliver distance learning opportunities.

TECHNOLOGY CONFERENCE ATTENDANCE





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Region 10 Education Service Center

Richardson, Texas • 972-348-1700 • www.ednet10.net

Technology initiatives at Region 10 ESC are designed and implemented for the purpose of improving instruction for the students in Region 10 schools. Region 10 serves 81 school districts and 10 charter schools in nine counties. Within these districts are a total of 847 schools with 533,377 in total student population. Region 10 schools are 22% African American, 25% Hispanic, 49% White, and 4% Other, with 42.1% economically disadvantaged.

The primary focus of instructional technology initiatives is based upon the effective and appropriate use of technology to enhance learning, instruction and productivity. Initiatives that support this focus address infrastructure access to information, utilization and presentation of information, and integration into the curriculum. It is our goal that every student and educator has access to information any time and any place and can select and efficiently utilize information relevant to the task at hand.

Teaching and Learning

Region 10 is committed to serving the changing needs of the districts. Over the past two years, the ESC has modified the workshops offered to districts and the delivery of that information. The TIE grant awarded to the Center made it possible to add many instructional tools for educators onto the regional network, EdNet[10]. Teacher resources available on the "NETcessities" page are invaluable to teachers. These resources include TEKS correlated lesson plans, Internet links, business videos, virtual enterprise activities, training manuals and training presentations, user groups, and FAQ's for online help for teachers. The focus of workshops has changed from skills-based instruction to project-based workshops that build skills for Technology Applications and demonstrate ways for teachers to use these skills in the classroom. Teachers leave the staff development with a project that is ready to integrate into the curriculum and ideas they can incorporate into future projects. These workshop principles have been applied in TIFTech Training and the Technology Specialist Institute as well.

The Preview Center has been updated so teachers and business partners can better utilize this facility. A presentation area has been added to provide software and hardware presentations to larger groups of teachers and administrators. The Preview Center allows quick access to the latest titles, and eliminates the inconvenience of ordering software preview copies. Staff members demonstrate use of the software and answer questions.

The Region 10 Roundtable meets quarterly to disseminate the latest information to the district technology coordinators on state and local initiatives and to serve as an avenue for information sharing and problem solving. In addition, approximately 150 teachers and administrators have been trained to access and utilize the TEKStar curriculum tool. Region 10 has also been instrumental in aiding schools in writing and developing technology plans and grants for TIF and TIE.

Educator Preparation and Development

Professional development is the primary focus of the Instructional Technology Division. Staff development is designed to enhance teaching through programs that meet the needs of diversified districts. Workshops are offered at the service center and other staff development is available on an individualized basis.

In May 1996, the Region 10 Education Service Center, local district representatives, and industry partners launched a major effort to design, install and operate a massive intranet connecting all regional districts to a hub at the Region 10 facility via T1 lines. EdNet[10] is now one of the largest educational data networks in Texas. Substantial savings on all products and services are available to member districts. Equality of access is provided to all students served by this network. Program offerings via EdNet[10] include Internet access, e-mail, access to third party programs, Region 10 service programs, and innovative resources designed by ESC 10 personnel for students, teachers and administrators.

Region 10 is home to the T-STAR Information and Training Center, which provides resources to support Texas educators who use the statewide T-STAR satellite network. The Center offers technical training to T-STAR contacts at other ESCs as well as training to teachers and administrators regarding strategies for integrating satellite resources into the K-12 curriculum. The Center also produces informational publications and T-STAR Network broadcast schedules.

Administration and Support Services

Region 10 offers assistance to TEA and local personnel in revising and implementing PEIMS. Region 10 support staff attend two or more conferences/workshops per year sponsored by the TEA PEIMS Division to stay abreast of modifications to the PEIMS reporting system and additions to the data elements. Training and a help desk assist personnel with PEIMS reporting requirements and re-submission of PEIMS data.

A software product, which enables users to disaggregate TAAS and end-of-course student performance data according to selected performance and/or demographic criteria for comparison with state accountability, was developed specifically for Texas educators by Region 10. Class Profiles provide comprehensive reports for students in math, reading, writing, science and social studies.

Time is always of the essence when educators are looking for the newest and best software to meet their curriculum needs. The Preview Center at Region 10 ESC allows quick access to the latest titles...The friendly staff are always available.... We are very fortunate in the Region 10 area to have such a valuable resource at our fingertips.

Robyn Liane, director of technology
Sunnyvale ISD

Infrastructure for Technology

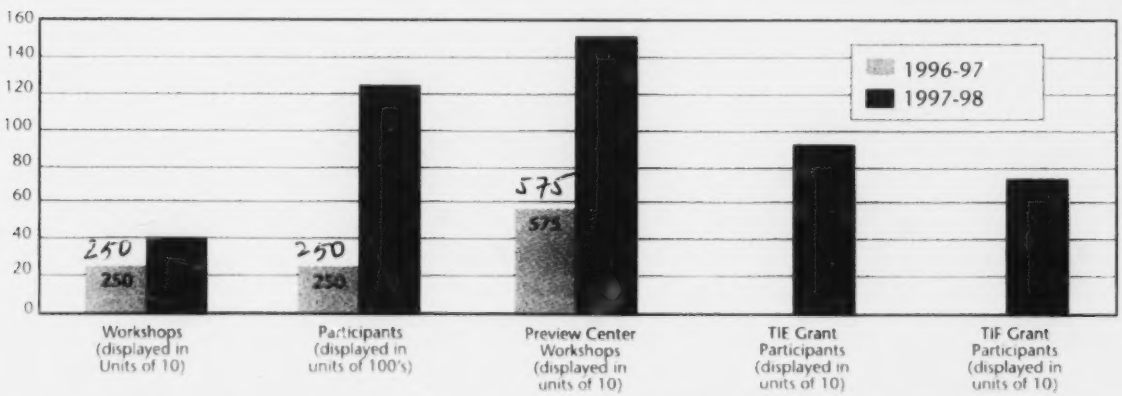
In addition to TETN, of which ESC 10 is a charter member, three major telecommunications infrastructures at Region 10 provide access to information, training and distance learning: the Regional Instructional Television Consortium (RITC), EdNet[10], and the Video Production Center.

The RITC was formed in 1978 and currently has more than 200 sites throughout the eight-county service area. The consortium telecasts include K-12 enrichment programming, distance learning for-credit courses, and staff development. One important program offered by RITC is the *Elementary Spanish* program that provides Spanish instruction three days a week to several thousand first through sixth grade students. ESC 10 also serves as the coordinating site for a three-year master degree in a Speech/Language Pathology course for over 100 graduate students, taught by the Texas Woman's University in Denton. A wide array of programming alternatives spanning the geography of Texas is now possible due to telecommunications connectivity available via TETN.

The Video Production Center serves ESC 10 educators and students. A variety of professional production services are offered, as well as training and educational experiences in television and video. A new videotape training series on the use of the Internet by classroom teachers, *The Internet Classroom*, was produced in the Video Production Center. This series has been distributed free to all 90 school districts that make up the EdNet[10] consortium.

It (special hardware and software for students with visual impairments) works well and I am currently using it on a research project for Biology. I want to thank you for this opportunity.

Phillip Gross, student
Lancaster ISD



Education Service Center, Region XI

Fort Worth, Texas • 817-625-5311 • www.esc11.net

Education Service Center, Region XI consists of a wide variety of school districts ranging in size from 58 students on a single campus to one district with more than 68,000 students on more than 110 campuses. The Center serves 80 public school districts, including one charter school, and at least 9 private school district systems. The region includes a range of schools serving a metroplex of urban and suburban communities, to rural and remote schools serving farming and ranching communities. The geography of the region consists of 10 counties that are roughly the same size as the state of New Jersey. The diversity of the region is also evident in wealth and student performance throughout the 80 school districts. While some districts can be categorized as wealthy, other districts have a large percentage of families who are economically disadvantaged. Within Region XI, nearly 33% of school-aged children qualify as economically disadvantaged, and 47% of the districts are considered rural, with distance limiting access to educational resources. Implementation of the *Long-Range Plan for Technology, 1996-2010* is beginning to overcome economic and distance limitations in the region. Equitable access to excellent educational resources represents a challenge, which is beginning to be met with the assistance of technology.

Teaching and Learning

ESC, Region XI:

- disseminates information and offers training on using the START resources to implement the Technology Applications TEKS and integrate technology into the curriculum
- through a partnership with Intel Corporation and others, provides coordination and leadership for a program to provide teachers and students with skills related to refurbishing and upgrading used computers and placing them in classrooms for instructional purposes
- through a partnership with Cisco Corporation, provides coordination and leadership for a program to provide teachers with training and support students with courses to learn marketable networking skills
- offers instructional resources for classroom use, using the T-STAR satellite system; the Region XI Telecommunications Network (RETN); instructional videotape, audiotape, and CD-ROM duplication and distribution; the Internet; and other methods
- provides NovaNET, a valuable instructional resource, over RETN to classrooms thereby meeting the needs of alternative education classrooms and a variety of other special student populations
- assists and trains librarians to take full advantage of the Texas Library Connection projects and the implementation of the Library Standards

Educator Preparation and Development

ESC, Region XI:

- provides approximately 240 regional staff development opportunities annually for teachers to learn to integrate technology into the curriculum
- offers more than 60 customized staff development activities annually for districts and campuses to help them meet their specific curriculum and staff development needs
- provides a two-year technology mentoring program, TECH Academy, that trains lead teachers to be mentors, models the integration of technology into the curriculum, provides staff development regarding technology integration, and serves as a resource on each participating campus
- disseminates information and makes presentations on the Technology Applications TEKS by participating in a regional TEKS Express project that presents TEKS implementations throughout the region
- provides one-on-one technical assistance, as needed, via the Internet, the telephone, in person, on-site to individuals or committees at the Center's Technology Preview Center, over RETN, or other means
- offers staff development using the T-STAR satellite system, the RETN, video production and distribution, the Internet, and other methods

Administration and Support Services

ESC, Region XI:

- provides a Technology Audit for districts that assists administration with determining the status of technology integration in the district and planning future directions
- provides *Planning Pro*, a planning database tool, to each district to help them in developing and maintaining an ongoing technology plan, provides technical support for technology planning, and provides a planning retreat with a nationally recognized authority to help districts with technology planning
- hosts and facilitates an annual Tech Expo to offer teachers and administrators easy access to vendors and the newest technologies to assist them with planning
- maintains a software and hardware preview center of more than 2,000 software and hardware products for teachers and administrators to access
- develops and offers TIFTech training for eligible districts to integrate Internet activities into the curriculum, develop administrative policies to manage the technology and its use, and develop technical skills to maintain and fully utilize the technologies
- coordinates regional technology initiatives and provides leadership for TIF, TIE and other grant writing and collaborative efforts

Infrastructure for Technology

ESC, Region XI:

- provides leadership and coordination for RETN which serves as the communications infrastructure for voice, video, and data between schools, the Center, and eventually TEA, in support of the Commissioner's Public Access Initiative
- provides Internet access to districts and campuses including network design, hardware purchasing assistance, free IP addresses, T 1 line leasing and monitoring, troubleshooting, installation, technical assistance, Internet filtering and staff development
- through RETN and its governing Board of Directors, the Center coordinates two-way video/two-way audio communications and instruction, including college coursework for students and teachers

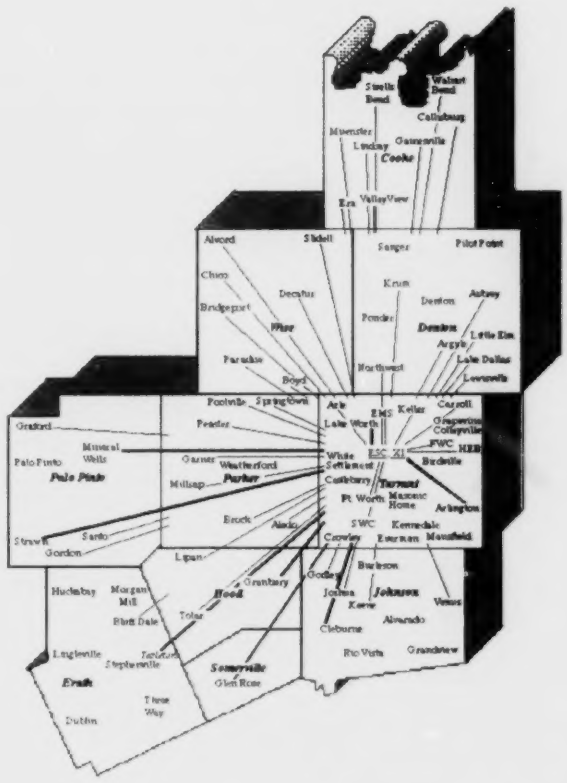
offers staff development, electronic field trips and special events to bring renowned guests to the classroom and to share master teachers between districts and campuses

provides regional e-mail services

offers technical assistance to schools for technology planning and for integrating technology into all campus and district plans

supports the utilization of the T-STAR network through training, satellite maintenance contracts, user group activities and programming alerts

provides maintenance contracts to support districts with their local area Novell and Windows networks



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Education Service Center Region 12

Waco, Texas • 254-666-0707 • www.esc12.net

The Education Service Center Region 12, as a vital partner in learning, supports the central Texas educational community in improving student achievement by modeling effective leadership, promoting professional development, and responding to clients' needs. The ESC Region 12 assists more than 17,500 educators and staff in 78 districts in the education of more than 132,000 students. In 1997-1998, the Texas Education Agency rated 11 districts as Exemplary, 29 districts as Recognized, and 38 districts as Academically Acceptable within Region 12. Even though 46 % of Region 12 students are considered economically disadvantaged, they met or exceeded state grade-level average scores for all but one TAAS exam category in spring 1998. In the region's 11,000 square mile, 12-county area, 45 districts have fewer than 345 students and are more than 15 miles from ESC offices. The ESC Region 12's main office is located in Waco, and the Center recently added an office in Killeen. These two offices are in the vicinity of four of the region's eight largest districts, but the other four largest districts are more than 45 miles away. The ESC Region 12's emerging educational technology services and telecommunications network are essential not only for providing all Region 12 districts with equitable and affordable programs and services, but for continuing to improve student performance as accountability standards are raised.

Teaching and Learning

ESC Region 12 provides a menu of technology services for schools through a *Professional Development Events Catalog* that is published three times a year and is available electronically on the web. These services support the implementation of the *Long Range Plan for Technology, 1996-2010* as well as regional and local technologies. Services and resources for integrating technology into the classroom curriculum are shared on a regular basis through workshops, awareness sessions, advisory team meetings and online activities. In addition to training opportunities offered to educators at the ESC and in the districts, ESC Region 12 collaborates with districts by team teaching in the classroom. Through this collaboration, educational technology specialists demonstrate how to integrate technology into the gifted and talented curriculum to produce Apollo 11 Mission and All About Me multimedia projects. In addition, ESC Region 12 was instrumental in bringing students from the Hillcrest Professional Development School to participate in the Texas Capital Schoolhouse Event in Austin, Texas, where they completed a multimedia project highlighting their study of the State Capital and communicated, via a three-way videoconference, with fellow classmates back home and a history expert off-site.

Training on the Technology Applications TEKS (TA TEKS) curriculum, its role in the core foundation area TEKS, and implementation strategies was provided through workshops, regional "cluster" sessions and a T-STAR satellite broadcast. Assistance in developing lesson plans and student-oriented activities is provided to help individual districts meet the recommended knowledge and skills for Technology Applications. In addition, ESC Region 12 conducts training sessions entitled Looking at Technology in a Brain-Compatible Way to demonstrate how various types of hardware and software can be effectively utilized in a classroom.

ESC Region 12 technology specialist works with a student at the Texas Capital Schoolhouse Event.

Instructional materials and resources, offered as a result of partnerships with many different educational software companies, are demonstrated by ESC Region 12 staff in the Educational Technology Preview Center.

The importance of technology planning and the use of technology in teaching and learning have been emphasized through technology planning seminars.

Science & the Internet:
Super job of presenting Integrating the Internet and Curriculum. It was well organized, and the information was very timely and pertinent to teachers' needs.

Vicki Crain
Hillsboro ISD

Educator Preparation and Development

Ongoing staff development for ESC Region 12 and district staff members is a priority. Professional development opportunities are provided through regularly scheduled workshops as well as customized staff development sessions. Through professional development activities, educators learn about exciting and innovative strategies which focus on: integrating technology and TA TEKS into the curriculum, including examples of interdisciplinary projects; ingredients for successful distance learning environments; and integration strategies for electronic media and the Internet. Monthly curriculum-specific awareness sessions are provided for educators in the Educational Technology Preview Center to review current and emerging technology solutions. ESC Region 12 sponsors a curriculum-based Technology Fair each year for educators and community members to investigate a variety of software solutions. In addition, ESC Region 12 has provided TIFTech training for districts. ESC Region 12 also participated in the development of the state Social Studies Center for Educator Development website which won the state contest for best regional social studies website.

Software & Resources for Secondary Education
Excellent technology program...It was professional, informative and interesting. I believe that the students will benefit greatly.

Linda Baxley, counselor
Walnut Springs ISD

Administration and Support Services

ESC Region 12 promotes district awareness of technology resources that assist local personnel by offering software packages and training sessions in all areas of data management for school improvement. Training on how to use technology to support business services, including payroll, budgeting, personnel management, and criminal background records checks; and all aspects of schools operations, such as attendance accounting, scheduling, and student registration and grade reporting is also available. Assistance in selecting, securing, installing, networking and using technology systems more effectively is provided to area schools. Training and assistance in revising and implementing PEIMS and troubleshooting and problem solving for Windows 95, Macintosh, and T-STAR are offered on a regular basis as well. In addition, technical assistance in web publishing is available to district personnel, and space is provided on the ESC 12 web server for posting of districts/campus web files.

Infrastructure for Technology

ESC Region 12 is moving full-speed ahead in support of the Commissioner's Public Access Initiative by building a regional telecommunications network, EDLINK12, for Internet access, e-mail services, videoconferencing, voice communications, secure data exchange, distance learning, professional development, community services, instant communications and access to other educational tools. The EDLINK12 network, funded through a Technology in Education grant, will connect 54 Region 12 districts to greatly facilitate regional collaboration.

ESC Region 12 offers professional development and technical assistance to educators and administrators to assist with revising, implementing and evaluating technology plans and integrating technology into all campus and district plans. The Region 12 telecommunications specialist and the network specialist each provide expertise in network design and infrastructure for technology plans while educational technology specialists assist with integration of technology into all aspects of instruction.

Technology Planning Retreat
Good combination of "lecture", interaction, discussion and modeling...Excellent materials will be helpful in implementation - We'll start Monday!

JoAnne Beaty
Waco ISD

region xiii education service center

Education Service Center, Region XIII

Austin, Texas • 512-919-5313 • www.esc13.tenet.edu

The Education Service Center, Region XIII serves a 16-county area of central Texas encompassing 59 public school districts, 8 charter schools, 7 higher education institutions, and 196 special/private/parochial/alternative schools. With a student-to-teacher ratio of 15:1, our 240,000 students are served by more than 16,000 teachers and 13,700 additional staff. District sizes range from Austin ISD with more than 76,000 students to Doss CCSD with 21 students. Though Region XIII includes several large and medium districts, the vast majority of our districts are labeled as small and rural in nature. Throughout the region, 38% of the students are considered to be economically disadvantaged. The goal of improved student performance that the RESC-XIII supports so strongly is demonstrated through students' TAAS scores. Every grade level experienced a significant improvement between the 1996 and 1997 results, with the summary of all tests taken jumping from 69.1% passing to 75.2% passing. The graduation rate, at 88.4%, is also on the climb. The only thing dropping, is the dropout rate, which is down to 1.4%. Delivery of services to such a diverse and geographically scattered population represents a challenge for which technology offers current and emerging solutions.

Teaching and Learning

Education Service Center, Region XIII has taken a proactive role in the proliferation of technology in the education process within our region. This is demonstrated through the leadership role and care that the technology department demonstrates in its interactions with district representatives. The staff is often called upon to offer support to local district efforts to bring about increased use of technology. The ESC receives frequent requests to make presentations to school boards and administrators and to conduct workshops for educators. Other services include technology workshops held at the RESC; grant writing assistance; e-mail; listserv and E-Rate support; TIFTech training; T-STAR User Group; ESCONETT User Group training; and free web page hosting services.

The RESC-XIII excels at interacting with the technology contacts in the region. For several years, the RESC-XIII has maintained immediate communication with the local contacts through a listserv e-mail system. At regularly scheduled, face-to-face Visionaries in Technology and Learning (VITAL) meetings, the latest issues and technology enhancements are presented by RESC-XIII staff and guest speakers, and local technology contacts share best practices with their peers.

The RESC-XIII has long recognized the importance of planning for technology. A major effort has been made to facilitate effective planning for technology by our constituent districts. As a result of special training sessions, our districts have viable and effective long-range plans for change in technology implementation.

Collaboration with small and large districts, the University of Texas College of Education, and the RESC-XIII resulted in a TIE grant award. This funding was used to create a CD-ROM focusing on technology and the TEKS as they are applied in the classroom that will be distributed to all schools in Texas this fall.

The RESC-XIII offers a catalog of curriculum enhancement resources available via the telecommunications links at local campuses and districts. The catalog is also available online at http://www.esc13.tenet.edu/catalog/catalog.html.

The RESC-XIII's Technology Preview Center provides educators with numerous opportunities to preview software titles, hardware options, peripherals, books, magazines and emerging technologies. Thematic events focusing on the use of software to meet the TEKS are hosted several times throughout the year to link curriculum and technology. Business alliances with vendors allow RESC-XIII to obtain and maintain Preview Center resources. Preview Center web pages with links to technology and curriculum resources, Business Alliance members, special events listings, and distance learning providers are posted on Region XIII's website. Quarterly newsletters are sent to all educators in the Region.

Educator Preparation and Development

The RESC-XIII provides training and technical support for Service Center staff, district and campus administrators, teachers, administrators and other support staff. Many of the sessions are advertised in the professional development catalogs while other sessions are created and conducted in quick response to stated needs, as they arise. Training is conducted either at the Service Center or on-site in the districts. Just in the area of technology training alone, the staff provided instruction to well over 3,500 educators in the past year. Upon district request, the RESC-XIII technology staff participates in district-level planning for staff development. Workshops were held addressing the TEKS in all content areas and including examples of technology use ranging from graphing calculators to accessing the many resources found on the Internet. Implementation of the TEKS remains a high priority.

Our use of technology...has been a real motivator for our students. Last year, we had students who began the year absolutely refusing to read anything that wasn't required and ended the year reading everywhere they went, so they could take computerized tests and earn points for reading. We gave more than 2,000 individual reading awards last year (many students earned multiple awards) and became a school of readers. We really attribute this to our use of technology in the reading curriculum.

Pat Rueter, principal
Dessau Elementary

The RESC-XIII will provide leadership towards a new method of electronic delivery of staff development. This new approach will extend participation in RESC-based live sessions to remote sites and will deliver electronically stored professional development content on demand to remote sites. The anticipated result will be greater participation with less travel time and training content that is available 24 hours a day, upon educator request.

Administration and Support Services

The RESC-XIII is responsible for the PEIMS data collection effort in the region. The Center conducts training sessions for school personnel, answers district questions and processes district data through the TEA PEIMS edit program. As part of its training effort, the Center developed a PEIMS training manual that receives high marks from district personnel. The Center has modified its administrative information systems to facilitate PEIMS reporting. District data is submitted electronically to TEA. A next step forward will be electronic receipt of district data over the regional intranet that is being constructed.

Infrastructure for Technology

One of the most significant technology-based projects that the RESC-XIII has been involved in is participation in the wide area intranet, ESCONETT. The Service Center has been a strong proponent of district participation in such a network because of the many advantages it offers for collaboration. With a network connection, the sites have a robust connection to the Internet and to the additional content available via T1 connections at local campuses and districts. More than half of the districts in the region currently participate as ESCONETT sites with additional districts planning to participate in the near future. Of particular interest, are the distance learning applications being developed for delivery through this intranet.

The RESC-XIII provides network design, implementation support, monitoring of the district T1 line connection, and assistance for local managers in maintaining the connection.

Education Service Center, Region 14

Abilene, Texas • 915-675-8600 • www.esc14.net

The area served by Education Service Center, Region 14 is known for its rich blend of cultures; its major metropolis of Abilene, which serves as the hub for business, commerce and technology; and its extensive farming and ranching communities. There is another picture, which stands in stark contrast: a profile of tremendous diversity of wealth and student performance throughout the 43 school districts. While a few districts excel in measures of wealth, other districts have more than 40% of families who live below the poverty line. Within Region 14, nearly 53% of school-aged children qualify as economically disadvantaged, and 68% of the districts are rural. Declining enrollment and uncertainties in the ranching and farming economies have made school budgets a critical issue in providing quality education. Region 14 schools are proud that TAAS student achievement scores exceed the state average and the percentage of students passing Advanced Placement exams also exceeds the Texas average. The 13-county area represents some of the poorest, most needy, isolated, and underserved school districts in Texas. Equitable access to excellent educational resources represents a challenge, which can be met through technology.

Teaching and Learning

Region 14 ESC has established and provides a wide range of services for schools to support implementation of the *Long Range Plan for Technology, 1996-2010* and regional and local technologies. These services include the following:

- Educational technology consultants provide phone support and e-mail help, and make regular on-site visits to districts. E-mail service is provided to all educators and support personnel in the region and approximately 80% take advantage of the user@esc14.net accounts. A directory of Region 14 users is available online at the ESC website: http://www.esc14.net.
- Consultants in all ESC departments disseminate pertinent information and offer staff development on technology integration into the curriculum, including the TEKS and expectations for technology proficiencies for educators and students. Implementation of the AEISIT and TEKStar programs has met with widespread usage by Region 14 districts with training and technical support provided by ESC consultants.
- Region 14 distributes current information and training related to the best practices for technology planning and use of technology in teaching and learning. Region 14 technology consultants stay abreast of the latest advances in instructional media and technology through regional and state conferences and workshops. All ESC consultants have modern multimedia notebook computers and access to portable LCD projectors to travel to districts and present promising practices.
- In an effort to maximize area technology resources, Region 14 has entered into a partnership with local educational and community entities in a collaborative undertaking called the West Texas Telecommunications Consortium (WTTC). The 56 members of the WTTC consist of K-12 and higher education institutions, libraries, hospitals, city governments, government agencies and public institutions. The full consortium member list is available at: http://www.esc14.net/esc14/dept/wttc_memberlist.htm
- Region 14 ESC provides educators and students with a facilitated preview of many learning resources, especially those provided through state license and adoptions.
- The Service Center employees have been proactive in assisting schools in developing and implementing strategies to meet the performance descriptions in the TEKS.
- The technology department at ESC 14 offers current technical assistance for technology planning.

Educator Preparation and Development

- Region 14 ESC has numerous partnerships in support of local technology initiatives. Cluster meetings for technology coordinators, and e-mail support and workshop training for area educators is an ongoing and growing process.
- Region 14 ESC offers on-site and in-house professional development to educators on TEKSTAR, AEISIT, T-STAR, TLC and technology integration into the TEKS.
- Using the T-STAR satellites and the TETN network, Region 14 ESC offers professional development to educators by distance learning, distributed learning, and access to opportunities available to districts using their own equipment. All 43 school districts in Region 14 received T-STAR satellite dishes through TEA grants and participate in ongoing training at the ESC to stay current in video learning.
- Region 14 ESC provides a comprehensive lineup of technology workshops at the ESC and at the district facilities. These workshops include technology integration into teaching and learning, instructional management, professional development and administration. There is an ongoing process of train-the-trainer workshops designed to help train local personnel responsible for technical support. Region 14 also applied for and received a TEA troubleshooting grant in 1998 to further enhance these efforts.

Administration and Support Services

- By using traditional and modern methods of communication, Region 14 ESC promotes local district awareness of technology resources that assist local personnel in effective planning for school improvement. A hard copy of the District Phone and Addresses helps districts contact the ESC and other districts. The ESC's website has comprehensive resources providing up-to-date information on a wide range of educational matters.
- Region 14 works hard to provide timely technical assistance and support services to districts in selecting, securing, installing and using technology systems to promote efficiency and effectiveness in district operations.
- The Service Center works closely with TEA and local personnel in revising and implementing PEIMS.
- Comprehensive training programs at the ESC and district level are offered frequently to assist districts in using technology resources in all aspects of school operations
- Region 14 ESC strives to maintain a capable and client-centered pool of expertise for supporting schools, districts and individual staff; and integrating technology into instructional management and administration. A cooperative vendor list is developed annually with several other ESCs and information about state resources is disseminated.

Our school is committed to providing our students with the best possible technology resources and we greatly appreciate the help of TEA, TIF and the regional education service center in Abilene. Their assistance has enabled us to compete with affluent school districts in the acquisition of modern technology and training for our staff and students.

Gary Daniels, principal
Roby High School

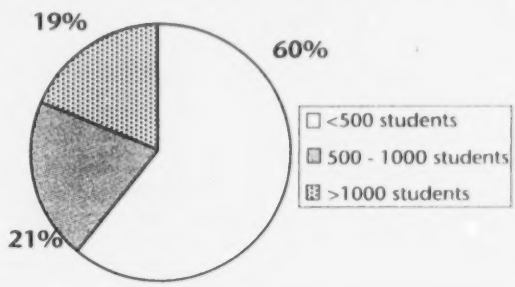
Infrastructure for Technology

- Region 14 ESC has helped school clients by facilitating an area wide telecommunications infrastructure for communications and service with T1 connectivity at every district.
- The technology department at Region 14 has considerable expertise to support school districts, and staff in planning for and using technology.
- Region 14 ESC provides modern forums for regional collaboration and offers technical assistance to schools for technology planning and for integrating technology into all campus and district plans.

Education Service Center Region XV

San Angelo, Texas • 915-658-6571 • www.netxv.net

The 18-county area served by Education Service Center Region XV is known for its open spaces, rural atmosphere and small communities. Eighty-four percent of Region XV districts are considered rural, and 60% have fewer than 500 students. Only Tom Green County is designated as urban. San Angelo is home to the largest school district in Region XV and is considered the major metropolitan area. San Angelo ISD has a population of approximately 18,000 students; the other 42 districts in Region XV are geographically dispersed across 25,000 square miles and range in size from San Felipe-Del Rio CISD with 10,000 students to Olfen ISD with 90 students. While only three districts have been designated as wealthy under Chapter 41 criteria, all districts in Region XV exhibit the results of a regional emphasis on student achievement in continuously improving TAAS scores. Although 72% exceed the state average of 48% economically disadvantaged, TAAS scores of economically-disadvantaged students continue to show gains. Progress towards implementing advanced technology has been tremendously enhanced during the past 14 months because of the infusion of more than $5 million in grant funds from a Technology Integration in Education award and several Telecommunications Infrastructure Fund awards. It is expected that the hard work and persistence traditionally innate to the West Texas persona combined with the leadership, expertise, and on-site support provided by the Education Service Center, will help school districts in Region XV to be recognized among the most technologically and educationally progressive in the state.



Teaching and Learning

Education Service Center XV:

- expanded its website to provide a menu of services and contacts correlated to ESC Departmental areas, including but not limited to just-in-time staff development resources, an online staff development catalog, online registration, and a web-based calendar
- offers extensive training and technical assistance for technology planning, including but not limited to web-based resources and links; large-scale workshops on effective planning practices presented by recognized leaders in technology planning; work groups; advisory sessions for individual districts; ESC participation in local education agency (LEA) site-based decision-making committees to provide technology planning assistance; and technology plan peer reviews. To date, 93% of Region XV district plans have been approved.
- employs adaptive and assistive devices, including routine use of technology as a means of output for special education students and use of a voice recognition system with scanning capabilities for students with visual impairments for the conversion of print to Braille or print to screen
- offers multiple opportunities for facilitated software preview, including scheduled, announced, monthly open houses in the Preview Lab and facilitated on-site preview upon request by school districts
- is developing a regional technology plan
- plans to develop and disseminate a checklist to evaluate educator proficiencies and to assist in determining training needs; disseminate information relating to the best practices in educational technology, create a web-based "how-to" area; establish a lending library of technology staff development materials; and coordinate the Cisco Networking Academies Project for Region XV

Educator Preparation and Development

Education Service Center XV:

- provides an extensive training-of-trainers project under the NetXV-TIF Round 2 award. Two local trainers from each of the 23 participating districts were trained in the use and integration of Microsoft Office components, Inspiration, HyperStudio, Netscape, and Internet resources. This training is also available to other Region XV school districts.

- offers on-site training at LEA request, using locally available hardware, software, and network/Internet connectivity thereby providing opportunities for both incidental and focused instruction
- holds a Summer Institute for Technology Enhanced Instruction. The five-day training focuses on technology in: math, social studies, language arts and reading, and science. Approximately 90 educators from Region XV attended and signed a commitment to present at least one lesson effectively enhanced by technology during each six weeks of the 1998-99 school year.
- plans to include data collection from the 23 NetXV-TIF Round 2 districts to determine the effectiveness of the training-of-trainers project; to repeat the Summer Institute for Technology Enhanced Instruction; and to continue on-site as well as ESC-based training

Administration and Support

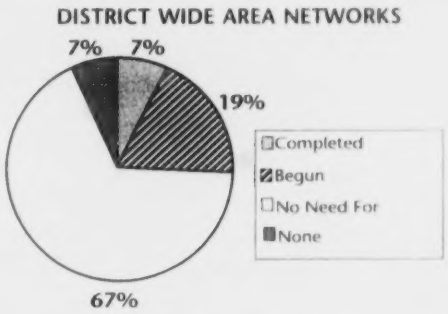
Education Service Center XV:

- assists administrators, teachers, and other instructional leaders in the disaggregation of TAAS data. Since October 1997, 72% of Region XV school districts have been trained to use computer programs to assist with these disaggregation efforts
- offers RSCCC 2000 Project: Windows 95 training and proficiency checks for RSCCC operators
- provides leadership for development of Windows 95/web-interface Management Information Systems software
- offers PDAS software training, support, and help desk for ESC consultants and district personnel
- plans to expand the TAAS data disaggregation project; apply for E-Rate discounts for NetXV Learning Resource; continue support for local district E-Rate applications; and offer RSCCC 2000 system training and user groups, and PDAS software update training and user groups

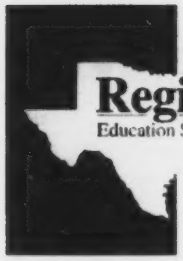
Infrastructure for Technology

Education Service Center XV:

- provides network development assistance. All districts in Region XV have established local area networks over the past two years.
- provides Internet connectivity and electronic mail services as well as data transfer, voice and fax to 33 of the 43 school districts in Region XV through the regional network, NetXV Learning Resource



- employs two full-time personnel to offer technical support to schools. Forty-seven of the districts in the region employ full-time personnel for technical support
- provided eight days of technical training to all site managers in NetXV districts; all technical personnel in districts transitioning to RSCCC 2000; as well as ESC technical support, instructional technology, and RSCCC 2000 support personnel in Windows NT administration and support
- applied for E-Rate discounts on behalf of NetXV Learning Resource; provided large-scale awareness sessions, extensive training, technical assistance, web-based resources, updates, work groups, individual advisory sessions and help desk support for local district E-Rate applications
- assists local school districts with grant proposals, bringing more than $6 million into the Region XV service area over the past two years. Assistance includes training and technical assistance in a variety of formats, such as web-based resources, large group training with recognized experts in grant writing, work groups, individual advisory sessions, and help desk support.
- plans to implement 10 videoconferencing classrooms in geographically strategic locations and add one full-time person to provide technical support



Executive Director
Darrell L. Garrison, Ed.D.

Region 16 Education Service Center

Amarillo, Texas • 806-376-5521 • www.esc16.net

The Texas Panhandle is primarily a vast rural, sparsely populated area of 26,000 square miles. This is the second largest ESC region in the state. Many Panhandle residents must drive 2 to 2 -½ hours to reach Amarillo, the largest city in the Panhandle and the economic center as well as the geographic center. The population density is only 14.3 people per square mile. The economic base of the area is mainly agriculture and ranching. The ESC serves approximately 85,000 students and 10,600 educators. The student ethnic breakdown is 63% Anglo, 30% Hispanic, 5% Black, and 2% other. Of these, 6% are bilingual and 13% qualified for special education. The school population includes 32.3% economically disadvantaged. TAAS scores are among the highest in the state and continue to improve.

Teaching and Learning

- Technology Services offers a variety of services: NovaNET, an electronically delivered individualized instruction service; Cisco Networking Academies, a specialized networking curriculum for high school students; media materials such as laser discs, videos, and CDs; a technology Preview Center; workshops on a variety of software; network services including secondary DNS, e-mail, web server service, Internet filtering and network maintenance; assistance in technology planning; individualized inservice training; and an annual technology conference that attracts more than 1,000 educators.
- Technology planning was offered to all the districts in the region during the technology conference and for one additional day afterward. Special sessions on technology planning were offered to all districts that were developing and updating their plans as they applied for grants.
- A website is being developed. Instructional materials and lesson plans designed to impact the lowest performances on TAAS objectives in the core subject areas will be posted on the website to facilitate collaboration.

Our building has a new lease on teaching life - thanks to technology! This training has been the best I have ever had! You folks have done a fantastic job helping us (with) the training as well as trying to answer our questions when we e-mail you or talk to you on the phone. Thank-you!

Karen Floyd
Canadian Elementary

- A variety of workshops were offered year round, including those which were designed in collaboration with curriculum specialists to train school personnel regarding technology integration into the TEKS.

Educator Preparation and Development

- Partnerships were established and are maintained with the districts to support secondary DNS, e-mail, web service and the Cisco Networking Academies. We support and encourage participation in the Panhandle Information Network, a consortium of 64 out of the 65 Region 16 districts.
- As a result of the TIE grant, staff development on strategies for integrating technology into the curriculum was offered to 600 teachers, representing 34 districts, for three months. Each lesson addressed at least one specific TEKS and teaching strategies appropriate to that TEKS, which use technology. For the TIF grant, 10 days of staff development was offered to 60 teachers from 46 districts over a period of one year. These teachers, in turn, offered staff development on integrating technology into the curriculum to other educators in their own faculties, directly impacting student learning.
- Through videoconferencing, professional development was offered to 600 teachers utilizing 15 different video sites. One hundred sixty teachers involved in the TIF grant participated via e-mail in lessons designed to teach the use of e-mail and web browsers. Sixty teachers were instructed in the use of Internet Protocol (IP) videoconferencing using digital desktop cameras.
- Instructional management of technology integration was taught to support TIF and TIE grants, emphasizing the use of one to two

computers per classroom. Eighty-seven business office personnel and superintendents were trained in the use of web browsers and navigation of the TEA website for financial updates and information. Administrators were taught the use of Professional Development and Appraisal System software for management of teacher evaluation.

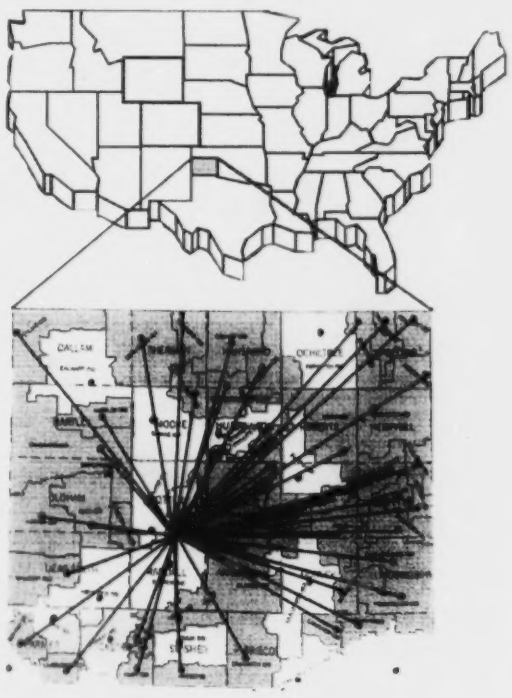
- Sixty school personnel representing 46 districts were given 10 days of instruction on furnishing technical support to their districts with special emphasis on the maintenance of Internet equipment.

Administration and Support Services

- The ESC sponsored many awareness workshops and hosted the Education Technology for the 21st Century conference, which was attended by more than 1,000 area educators.
- The ESC is a strong proponent and supporter of the regional network concept in the area. ESC staff participated in the planning, design, funding, installation and utilization stages of the development of these networks. Several new ESC services either utilize or support this growing system.
- PEIMS data from our region has been 100% complete for every reporting deadline, and errors are reduced in number with each submission.
- Several divisions offer regular training to assist districts in the utilization of technologies to improve school operations.

Infrastructure for Technology

- Region 16 had 5 of 65 districts with direct connections to the Internet at the beginning of the 1996-1997 school year, resulting in 7.7% of the districts having direct connections. The Technology Division staff at ESC 16 worked hard to improve the use and application of technology in education. As a result, 63 of the Region's 65 districts have direct connections at the start of the 1998-1999 school year. The Technology staff expects the remaining districts to be connected in September 1998, resulting in 100% of the Region's districts having direct connections to the Internet. The impact of this infusion of technology for education in the Panhandle has excited both students and teachers.
- The ESC has added new programs that provide support for network services, Internet filtering, regional e-mail, access to NovaNet curriculum, Cisco Networking Academies, videoconferencing, and curriculum enrichment via videoconferencing.
- The Technology Services Department has added staff to provide support for the districts' educational technology needs. It continues to send staff to training opportunities to maintain a high level of expertise in current technologies and implementation skills in order to plan for technology in education. In addition to regular training of district and ESC staff, the Technology staff continues to add new courses in support of current and future educational Technology Applications and planning for educational technology.



- Recognizing the need for educational technology and its role in learning, the Technology staff supports the human infrastructure for educational technology. Support groups, technology committees, and region-wide technology planning meetings play an important role in regional educational technology planning.

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LUBBOCK
Education Service Center
1111 West Loop 289 ■ Lubbock, TX 79416

Education Service Center Region 17

Lubbock, Texas • 806-792-4000 • www.esc17.net

Education Service Center Region 17 serves 59 school districts on the South Plains of Texas. The region includes 21 predominantly rural counties, which cover more than 18,000 square miles. Twenty-four of the districts have fewer than 250 students. While farming and ranching have traditionally been the major economic base, education and medical services support a growing population. While some districts are wealthy, 53.9% of the students region-wide are identified as economically disadvantaged.

Teaching and Learning

The Division of Media and Technology supports implementation of the *Long Range Plan for Technology, 1996-2010* with a full range of services, both in Lubbock and on-site in districts. A 600 square-foot Technology Preview Center and teacher workroom, the Creative Corner, provide teachers with access to more than 100 software programs, 60 CD-ROMs and 240 laser discs, in addition to computers, scanners, laminating machines and other state-of-the-art technologies. Educational technologists offer introductory software training and customized workshops in a fully equipped computer lab at the ESC and at computer facilities in the districts.

More than 9,000 video programs, 240 laser discs and 60 CD-ROMs are available at ESC 17. Teachers throughout Region 17 can access the Media Center Catalog of video materials using any computer that is capable of running VT100 emulation software and has a 2400 baud modem. A local telephone number and an 800-toll-free number provide easy access to the database. Teachers can search the entire catalog and place an order online without filling out a request or calling a booking clerk. Access to D-MAX services will soon be available on Internet via Web/MAX. In addition to D/MAX and Web/MAX, the Media and Technology Division offers, at no additional cost to districts, the *Encyclopedia Americana* and *Grolier Multimedia Encyclopedia*.

Technology Solutions, monthly meetings of district technologists, provide both formal presentations on current issues and an open forum for discussion and networking among districts. Since fall 1996, three two-day sessions entitled Nuts and Bolts of Technology Planning have involved teams of administrators, technologists and classroom teachers from 43 school districts in collaborative planning for technology. One-on-one assistance is provided to all districts. As a Regional Cisco Networking Academy, ESC 17 supports implementation of nine local Cisco Networking Academies in the region.

Educator Preparation and Development

In cooperation with faculty from the College of Education at Lubbock Christian University and Texas Tech University, educational technologists have developed a training program to integrate technology into the curriculum. On-site worksnops have provided comprehensive training to more than 475 classroom teachers in the past two years. Forty-five districts have participated in the TIFTech training offered by ESC 17.

The computer lab at ESC 17 includes 18 Micron computers and 18 Power Macintosh computers, each with direct access to TENET and the Internet. The lab can be used for both platforms or divided for PC and MAC. Both sections include an overhead monitor with VCR. Technology specialists teach regularly scheduled workshops in the labs throughout the year. Specialized computer training is scheduled at the request of districts, either in the labs or on-site in the districts. Technology specialists also coordinate presentations by software and computer vendors.

Working with the coordinator of curriculum and instruction, educational technologists provide workshops and individualized support to assist districts in meeting the performance descriptions in the TEKS. A train-the-trainer model is being developed to assist teachers in the implementation of the Technology Applications TEKS. Novell network training and Windows NT training are available to the district technologists who are responsible for technical support of district networks.

Administration and Support Services

Regularly scheduled meetings for administrators address the issues of technology planning and integration of technology into curriculum. Grant writing assistance is available to districts seeking additional funding for technology solutions.

A state-of-the-art computer lab was installed in 1997 to support training for district administrators and business personnel. In the past two years, more than 1,675 district personnel have been trained to use the State Computer Business Application and PEIMS Application in the RSCCC software and the Chancery WinSchool Student Software.

Infrastructure for Technology

Working with district superintendents and Hicks and Ragland Consulting Engineers, Inc., ESC 17 has developed a regional plan for a regional integrated voice, video and data network. Direct access to the Internet is provided by ESC 17 and the General Services Commission to 35 school districts in Region 17. With grant writing assistance from the coordinator of planning and development at ESC 17, 57 districts have received more than $5 million from the Telecommunications Infrastructure Fund Board for Internet access. Ten sites will be integrated into the video network with the funds received from a $2.38 million Technology Innovation in Education grant received in June 1998. Another six sites in the regional video network will be installed with a $1 million grant from the Telecommunications Infrastructure Fund Board to the Five-Area Community Telecommunications (FACT) Consortium.

As an extension of the T-STAR initiative, ESC 17 has developed a digital satellite-delivery program. A bi-directional microwave system links ESC 17 with HealthNet at Texas Tech University Health Sciences Center in Lubbock, providing access to a satellite uplink and a digital satellite. T-STAR satellite dishes in 29 school districts in Region 17 have been modified to receive the digital signal originating at the Health Sciences Center. From the production studio at ESC 17, programming can be provided to districts with the modified dishes or with compatible digital dishes. The project is a model for digital satellite upgrades statewide, as described in the Commissioner's Public Access Initiative.

Production services currently available at ESC 17 include: taping of satellite programs for delayed viewing; reception of live teleconferences; video taping at ESC 17; video taping in school districts, on campus or at school events; editing tape shot at ESC 17; editing tape shot in school districts; production of video tapes, including integration of video, audio, and graphics; delivery of taped programs via satellite; and delivery of live programs via satellite.

Region 18 Education Service Center
Midland, Texas • 915-563-2380 • www.esc18.net

The Region 18 Education Service Center is located at Midland Air Terminal, between Midland and Odessa in the Permian Basin. Serving 34 school districts in 19 counties, Region 18 is the largest education service center in geographic size in Texas. The population is as diverse as the terrain, with a large Hispanic influence and a rich Tex-Mex culture. Most of the districts are in small, rural communities and are dependent upon the oil industry or farming and ranching for economic support. Although traditionally known for its vast oil reserves, the greatest resource of the Permian Basin and Trans-Pecos areas of Region 18 is its friendly people.

Teaching and Learning

The Region 18 Education Service Center provides a wide variety of opportunities to schools that support implementation of the *Long Range Plan for Technology, 1996-2010* as well as regional and local technologies. A few examples include: workshops on using the resources of the Internet; training in many types of software applications; and a Cisco Academy to train teachers to teach network technology to high school students. Region 18 ESC also offers staff development on integrating technology into the curriculum with special emphasis on the TEKS. This school year, Region 18 ESC will provide every district and campus in the region with TEKStar, a resource bank of lesson plans and strategies that meet the performance descriptions in the TEKS in 55 curriculum areas. This activity is being funded through a grant that includes training and on-site technical assistance in the use of this important software package. Instructional technology consultants provide on-site assistance in the development, implementation and evaluation of district and campus technology plans. The Region 18 ESC also provides assistance in the preview of media and technology resources, especially those provided through state license and adoptions.

Educator Preparation and Development

The Region 18 ESC is a collaborative partner with the Centers for Professional Development and Technology at the University of Texas of the Permian Basin in Odessa and Sul Ross State University in Alpine. Professional development in technology is offered to preservice teachers through these partnerships. Teachers certified through the Region 18 ESC Teacher Certification Program are also provided professional development in technology. Professional development is provided to educators on integrating technology into classroom instructional programs. A special effort is being made to assist educators in integrating technology into the TEKS. To this end, Region 18 ESC is providing the TEKStar program to every school in the region. Additionally, training in the effective use of these programs is provided to teachers at no cost to the district. Professional development is provided to teachers through the use of distance learning via the interactive videoconferencing units connected to the EDLINK 18 wide area network. The infrastructure is in place for every school district, university and college in the region to participate in professional development through distance learning.

Administration and Support Services

The Region 18 ESC provides a broad base of training for administration and support services across all components of the Center. The Information Systems component provides training and support on the PEIMS data standards, *Student Attendance Accounting Handbook, Bulletin 742* and the *Financial Accounting Resource Guide*. Training is also provided on the administrative use of PEIMS data and how it is used in the accountability system to promote student achievement. Technical assistance, videoconferencing, telephone support, newsletters, and other correspondence are provided by Region 18 ESC staff to school administrators and support staff. Training programs to assist districts in using technology resources in all aspects of school operations is an on-going effort at Region 18 ESC. The staff is highly capable and client-centered, providing proactive leadership to support schools, districts and individuals in integrating technology into instructional management and administration.

Infrastructure for Technology

EDLINK 18 was organized in 1996 for the purpose of building an electronic network that would connect the students in the small, isolated towns of West Texas to the information superhighway. Superintendents and other district-level educators, Region 18 ESC administrators, deans of colleges and universities, and several public librarians in the region collaborated on this project under the leadership of Region 18 ESC. The vision of this collaboration was to build a network within the region to provide every school with Internet access, e-mail, File Transfer Protocol and other intranet services. Through the connections of T1 lines, all members of EDLINK 18 connect to the hub site located at Region 18 ESC. EDLINK 18 recently expanded to include interactive videoconferencing.

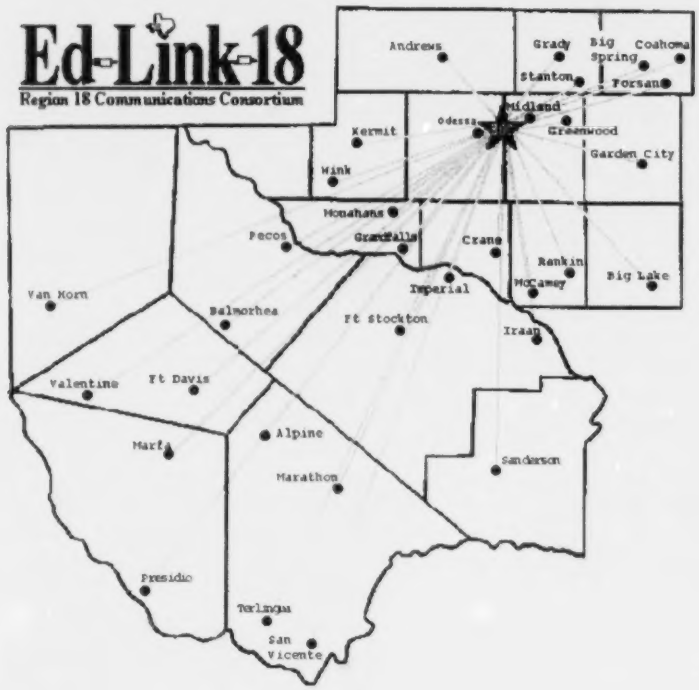
Through grants and local funds, every district in the region, two colleges, two universities and the Region 18 ESC will have this capability. This will be one of the largest networks in the nation of this type, having the capacity to dial to any other site in the network without scheduling through the hub site. Furthermore, any site in the network is able to dial to other similarly equipped sites anywhere in the world through a PRI line. Students now have the opportunity to attend college-level classes for dual credit via the EDLINK 18 videoconferencing system; teachers can attend professional meetings and receive staff development and training; and community members are provided with opportunities for extension courses. Through this electronic network, students and their teachers have access to a virtual bridge, spanning the barrier of distance to the world of information.

Region 18 ESC provided Ector County ISD invaluable service and support in the whole area of instructional technology, from assessing current conditions and capabilities, to guiding us in the development of our long-range plan, to assistance in the implementation of the plan.

Dr. Vernon Stokes, superintendent
Ector County ISD

Region 18 ESC has been invaluable to Andrews ISD over the past eight years. Information Services has helped us manage both our student and financial accounting. Any time we have had a problem, they were there to help. We could not make it without Region 18 ESC.

Mark Boswell, data processing director
Andrews ISD



Region 19 Education Service Center

El Paso, Texas • 915-780-1919 • www.esc19.k12.tx.us

Region 19 Education Service Center is located in El Paso, Texas. A total of 205 campuses and 12 districts are served by the ESC. Approximately 83% of the region's students are Hispanic, 13% are White, 3% are African American, and 1% are Asian/Pacific Islander or Native American. More than 70% of the students in Region 19 are considered to be economically disadvantaged and 34% are limited English proficient. Nine central offices and 81 campuses in the region currently have access to the Internet.

Teaching and Learning

Region 19 is committed to providing quality professional growth opportunities in instructional technology. Region 19 recognizes that to ensure technology literacy for all students, their teachers must be prepared to use and teach with technology. To meet this challenge, our service center offers a variety of professional development sessions. Throughout the year, educators can choose from:

- technology institutes developed to build campus technology mentors
- technology academies designed to integrate technology into the curriculum
- technology classes constructed to build computer skills
- technology camps created for students and parents

In addition, Region 19 collaborates with technology education providers to bring to our campuses current information on technology products that enhance learning and improve productivity and performance. Districts, campuses and classrooms have the opportunity to:

- attend demonstrations and training on graphing calculators
- participate in demonstrations and training on scanners, digital cameras, data grabbers, videoconferencing equipment and word processors
- collaborate with colleagues in the implementation of adaptive technology skills
- preview and evaluate the latest software and hardware

To expand district opportunities to build technology capacity for all campuses, Region 19 provides ongoing technical assistance for technology planning including:

- district long-range technology plans
- E-Rate proposals
- campus technology plans
- grant proposals

Educator Preparation and Development

Building on the Technology Application TEKS and the technology strands in the content areas, Region 19 ESC engages teachers in professional development opportunities designed to integrate technology into the curriculum in ways that will promote student thinking, reasoning and effective communication skills. Staff development sessions model professional growth opportunities that are job-embedded, however, after-school workshops are also offered. The opportunities for building and sustaining skills include:

- Internet training to support individually guided research on TEKS
- collaborative groups sharing innovative lessons using technology
- mentoring to increase implementation of the Technology Applications TEKS throughout the curriculum

To provide continuing education opportunities for school personnel on their home campus, Region 19 utilizes distance learning to provide support for the:

- curriculum and instruction aligned to the TEKS

- technical support on network design and project management
- certification-related courses or sessions
- university education graduate courses through the University of Texas at El Paso and New Mexico State

Region 19 maintains a variety of partnerships in support of local technology initiatives. These include:

- participation in the Trans Border Information Technology Collaborative - an initiative that includes three states and two countries
- collaboration with the First Virtual Corporation Bay Networks for distance learning infrastructure
- participation in the Border Education Technology Conference
- facilitation of the Regional Technology Advisory Council with membership from all districts, two universities, a community college and business partners

Administration and Support Services

To improve productivity, efficiency and effectiveness in education, Region 19 facilitates training opportunities, technical assistance and collaboration among districts, educational and community agencies, and business partnerships. Region 19 provides:

- distance learning sessions for school board training, community agencies, business partners, educators and students
- PEIMS data-input training
- business support for district payrolls and student records
- technology training and technical support for grant recipients
- technology institutes for administrators and superintendents
- customized software programs for TAAS data disaggregation, campus planning, time and effort reports, and lesson planning

Infrastructure for Technology

The Region 19 ESC multimedia network is designed to provide the districts within its service area with the most comprehensive communication solution possible. Using ATM, ISDN and other technologies, virtually any type of information delivery is possible.

Region 19 has been supporting two-way compressed digital television technologies for several years. Currently, six school districts and four institutions of higher education are linked. Region 19 acts as a central hub for leased digital T1 lines, which extend to the various distance education sites. The Region 19 Network has already been helping students and educators in the area to obtain access to shared educational resources, access to electronic mail and the resources of the Internet. Facilitators and technical staff are available to assist in scheduling conferences and to provide technical support to users.

Region 20
EDUCATION SERVICE CENTER

Education Service Center, Region 20
San Antonio, Texas • 210-370-5200 • www.esc20.net

A snapshot of Region 20 reveals 315,000 students (pre-Kindergarten-Grade 12), more than 24,800 professional staff, 17,000 square miles, 51 public school districts, and 515 campuses. With San Antonio as the only metropolitan hub for business, commerce and technology, the 15-county area served by ESC-20 contains some of the poorest, most needy, isolated, and underserviced schools districts in Texas. Extending from inner-city San Antonio barrios to the Texas hill country, to affluent suburban districts with lightening-quick growth patterns, to the rural US-Mexico border, ESC-20 districts accommodate poverty, vast distances, sparse populations, over-crowding, out-dated facilities, and cultural isolation, as well as affluence, state-of-the-art technology, nationally recognized leadership, and cosmoplitan communities committed to high educational standards. Within Region 20, almost 62% of the 315,000 school-aged children qualify as economically disadvantaged. The diversity among populations and disparity of resources within Region 20 is most clearly illustrated by the comparison of the below-average TAAS results to the above-average percentage of students passing Advanced Placement exams.

The Southside ISD will use technology to empower the educational community and enhance the learning environment for all...All students will be able to use technology tools that will enable them to shape their own destinies. All students will participate in a technology-rich environment that meets their instructional needs and enhances the productivity of an education in our district.

Teaching and Learning

ESC-20 publishes a staff development calendar three times a year that offers a variety of technology-related workshops. These workshops cover software application programs on both Windows and Macintosh platforms. The Educational Technology Division offers a technology training cooperative that provides ESC-20 districts with a cost-effective method to pre-pay enrollment in technology workshops for their district staff. Recently, Educational Technology staff have teamed up with content area staff within the Center to present workshops focusing on the infusion of technology across the curriculum. A "Bridge" group consisting of both Educational Technology and Instructional Services staff has been created to address the need for identified technology competencies for educators responsible for instruction of the technology-rich TEKS. ESC-20 maintains communication with district technology staff via locally maintained listserves and webpages. ESC-20 district partners of the regional network, STARTnet, have designated staff members to serve on a work group addressing technology integration in ESC-20 schools. This work group will research and develop processes for effective instruction using the technology resources available through the regional network.

ESC-20 continues a rich and proud tradition as a premier content provider for distance learning in the state of Texas and in the nation. Through its affiliation with the former TI-IN Network and its successor, the USDLC's StarNet, ESC-20's for-credit courses, and staff development and enrichment programming reach hundreds of Texas teachers and learners each year with learning opportunities to which they would otherwise not have access. Through other partnerships such as those with the Migrant Education Division of the Texas Education Agency for Project SMART, the T-STAR Network as a programming affiliate, the Southwest Texas Network as a SWTnet partner, and the federal Star Schools initiatives, the ESC-20 distance learning programs continue to enjoy expanded technologies, content, and leadership and programming activities with the Region 20 STARTnet Consortium and the Star Schools-funded USDLC.

Educator Preparation and Development

ESC-20 Educational Technology staff is involved in several professional development activities that support technology integration into the TEKS. Workshop development efforts consider the use of technology applications for administrative and instructional use. The Somerset ISD Earn as You Learn program is an example of this approach. This past summer, ESC-20 staff worked with Somerset ISD K-12 staff members to implement a staff development program that allows teachers to develop their instructional technology skills, thereby earning a new computer for their classroom. ESC-20 provides more than 150 hours of staff development opportunities by distance learning through its satellite-delivered StarNet broadcast programming.

The Southwest Texas Junior College created a consortium with many of the ESC-20 districts in the Uvalde area. This consortium built a video-conferencing network used by ESC-20 staff to deliver staff development programming. The developing regional network will expand this existing video-conferencing network in order to better serve the regional community. Regional network efforts also include the development of a technical support institute for ensuring that ESC-20 districts have an adequate number of technical support staff on their campuses.

Crystal City ISD Board of Trustees, district personnel, SBDM Committees and the community strongly support a continuous review and upgrade of our school district's technology plan and services to our students. This is a necessity, especially when technology is constantly changing. The integration of technology into all academic and vocational curriculum will better prepare our students for the complex and rapidly changing technological world.

Benito Perez, Ed.D.

Administration and Support Services

ESC-20 offers several programs that provide technical assistance and support services to districts using technology systems to promote efficient district operations. ESC-20 manages the Educational Technology Cooperative Purchasing Organization, providing member districts with convenient and cost-effective technology and software acquisition options. ESC-20 developed a program to make infrastructure and networking services available for districts in the region. In addition to technician-level services, the workgroup provides high-level design, management and evaluation services across the region. The ESC-20 Information Systems Division, together with the STMRPC and the RSCCC, provide technology-based information processing in approximately three-quarters of the districts in Texas. The Center provides mainframe and pc/mini-based software and services for business, student and a number of specialized information management processing and reporting needs. The State Comptroller's Office has identified software and service developed through these cooperative efforts at ESC-20 as one factor contributing to district efficiency across the state. Information Systems staff are responsible for training district personnel to maintain, collect, edit and transmit PEIMS data to the TEA. Additionally, accountability workshops aimed at informing ESC-20 district staff of closely monitored compliance issues, e.g. attendance, TAAS, special programs and enrollment, have been conducted. ESC-20 field service agents have been responsible for training superintendents in the use of the electronic finance template for computing state aid, e-mail communications and group systems. By using presentation software and related technology, field service agents model the use of technology for district administrators and school board members.

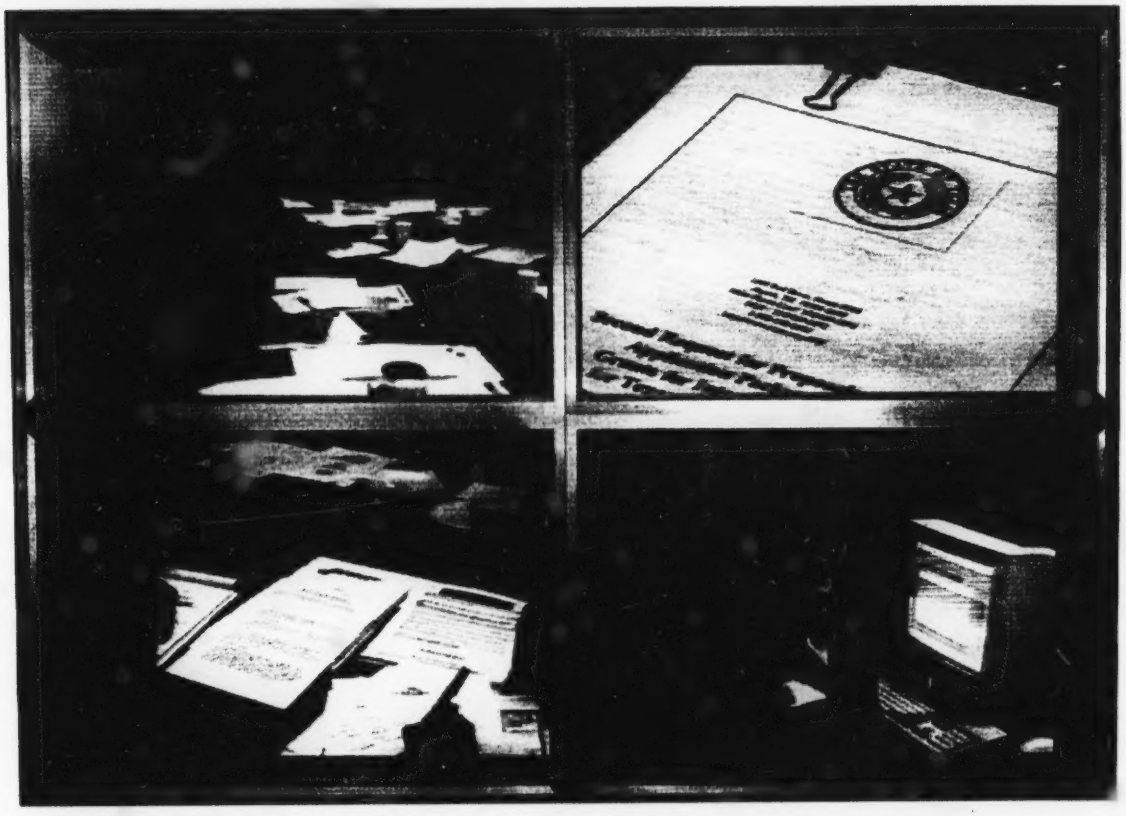
Infrastructure for Technology

Consistent with the Region 20 Regional Plan for Technology, district plans, the Texas *Long Range Plan for Technology, 1996-2010*, and the Commissioner's Public Access Initiative, ESC-20 is in the midst of installing a regional technology and telecommunication infrastructure. After extensive research and collaboration with the 51 Region 20 districts, 4 private schools, 2 community colleges and 2 charter schools, the regional telecommunications infrastructure incorporates ATM architecture, allowing voice, video and data communications to share common connections between sites. In addition, a network of six to eight videoconferencing centers is being installed in districts across the region. ESC-20 is an Internet service provider for 25 districts and provides ongoing technical support for telecommunications access. During 1998-1999, ESC-20 also will establish a technical training institute to train staff at campuses; retrofit satellite delivery of comprehensive distance learning courses and staff development to be compatible with T-STAR; provide technical planning and consultation; and establish a help desk function to assist regional partners.

One Example of Technology in Region 20 Schools

- Through the STARTnet collaborative TIE grant award, 12 Region 20 schools/districts and one private school are converting paper catalogs to electronic format for inclusion in TLC. Retrospective conversion is a fundamental step in the automation of a library. The TIE grant is funding this conversion so that schools will be ready to automate and join the TLC project. Already, Hondo ISD has completed this conversion and is implementing automation on its three campuses. At a recent regional meeting, one librarian was elated to report that this project had finally convinced the district superintendent that automation is possible for their small district! As a result of this project, more than 13,000 students will gain access to the rich resources available to TLC members.

Funding Opportunities



I feel that this grant has honestly revolutionized the way I teach.

Rhonda Patterson, TIE grant participant
McLean ISD

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Executive Summary

Funding for educational technology, for most schools, is a combination of local, state and federal funds. As schools budget for technology expenditures, there are many sources of funds that can be used for technology but few are targeted exclusively for that purpose.

Texas implemented the Technology Allotment in 1992 to provide $30 per student each year for technology. With this funding, districts have been able to address many of the goals in their technology plans. The Allotment is used for electronic textbooks, access to electronic textbooks, and training. The *Long-Range Plan for Technology, 1996-2010* recommends that at least 30% of the Allotment be used for technology staff development.

In 1995, the Telecommunications Infrastructure Fund (TIF) was established to help develop the telecommunications infrastructure that connects public entities such as public schools, public libraries, two and four-year colleges and universities, and the public health delivery system in Texas. A nine-member board of directors that is charged with disbursing approximately $1.5 billion in revenues through loans and a formal grant program governs TIF. More than $100 million in grants have been awarded to 776 school districts.

The Technology Literacy Challenge Fund was established to help advance the following national goals for technology in education as specified in the national long-range plan for technology, *Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge*:

- all teachers will have the training and support they need to help all students learn through computers and through the information superhighway
- all teachers and students will have modern computers in their classrooms
- every classroom will be connected to the information superhighway
- effective and engaging software and online resources will be an integral part of every school curriculum

During 1997 and 1998, this program provided more than $48 million to Texas schools and approximately $35 million is expected for each of the next three years.

The Technology Innovative Challenge Grants, the Telecommunications and Information Infrastructure Assistance Program, the National Science Foundation and other federal grant programs target technology use in education. A wide variety of businesses and foundations also provide funds for technology projects through grants. These programs are highly competitive and the requests for funds far exceed the amounts available each year.

A variety of other federal funds are also used to implement technology in public schools. Title I, which establishes formula grants to local education agencies to help disadvantaged students meet challenging academic standards, covers the cost of approximately $500 million in software and hardware nationally each year. Title II, the Eisenhower Professional Development Program, can be used for hardware and software purchases and to develop educators' skills in using and integrating technology into their teaching.

The Title VI school improvement block grant program is designed to assist with local education reform, innovation and improvement activities. The statute permits school districts to apply their block grant funds toward, among other things, technology training for teachers and instructional computer hardware and software. Title VII, Goals 2000, and IDEA funds may also be used for computers and educational software.

The Universal Service Fund Education-Rate (E-Rate) program does not provide funds directly to schools but will allow them to purchase, at a discount, improved telephone service and greater bandwidth that allows more data to travel across wires for Internet and e-mail use. It will also allow for the installation of wiring and other technologies associated with networking in schools and libraries. The E-Rate discounts cannot replace funding from other sources, but can be used to support technology plan initiatives and leverage other local, state and federal funds.

While there are many sources of funds that may be used for technology, many districts use technology collaboratives, grants, local bond issues, business partnerships and other mechanisms to access resources for achieving the goals in their technology plans.

Funding Opportunities

A number of sources of funds are available to Texas schools to address their technology needs, including the Technology Allotment provided by the State Legislature, state and federal programs for grants and telecommunications discounts. In the past five years, the Instructional Technology Division of the Texas Education Agency has awarded more than $50 million in state and federal grant opportunities to school districts and collaboratives of school districts. Over this period of time, several changes have been noted. There has been a significant increase in the quality of proposals. Applications are better developed and better written, and display more effective communication based on data-driven needs assessments. The end result is an increase in the number of well-planned, collaborative processes and highly structured, well thought out programs that are designed to integrate technology into administrative and instructional settings.

Through the availability of open records, which allow potential applicants to view awarded applications, and information shared via presentations and programs broadcast over T-STAR, educators have learned the skills necessary to develop and write successful proposals and have become familiar with the grant application process. As a result, many districts are able to develop their own applications without having to hire a professional grant writer.

Application reviewers have also become more savvy. As a result of the increased number of quality proposals, reviewers have had the benefit of exposure to higher quality, more sophisticated grant applications. They are better able to recognize well designed programs and high-quality grant applications. As a result of participating in staff development for reviewers and through the experience gained by reading grant applications, reviewers increase their own knowledge and skills to become better grant writers themselves.

Technology Allotment

The purpose of the Technology Allotment is to provide monetary resources to school districts in support of the *Long-Range Plan for Technology, 1996-2010* goals.

In 1992, all school districts in Texas began to receive a Technology Allotment of $30 per student per average daily attendance (ADA) for the purchase of technology in support of the goals of the Long-Range Plan. According to statute, at least 75% of the Allotment funds were to be used for instructional purposes. Over time, technologies have become more advanced and schools have become more aware of and sophisticated in the implementation of the technologies. The lines between instructional and administrative uses of technology have blurred.

Originally funded from the Foundation School Program, the Technology Allotment became part of the State Textbook Fund following passage of Senate Bill 1 in 1995. The Texas Education Code mandates specific usage for the Allotment:

> *...to be used only to: provide for the purchase by school districts of electronic textbooks or technological equipment that contributes to student learning; and pay for training educational personnel directly involved in student learning in the appropriate use of electronic textbooks and for providing for access to technological equipment for instructional use.*

The Texas Education Code expanded the definitions of textbook and publisher to include electronic formats as follows:

"Electronic textbook" means computer software, interactive videodisc, magnetic media, CD-ROM, computer courseware, online services, an electronic medium, or other means of conveying information to the student or otherwise contributing to the learning process through electronic means.

"Publisher" includes an online service or a developer or distributor of an electronic textbook.

"Textbook" means a book, a system of instructional materials, or a combination of a book and supplementary instructional materials that conveys information to the student or otherwise contributes to the learning process, or an electronic textbook.

"Technological equipment" means hardware, a device, or equipment necessary for:

- instructional use in the classroom, including to gain access to or enhance the use of an electronic textbook
- professional use by a classroom teacher

Through the Technology Allotment, school districts across the state have been able to develop and/or expand their existing technology programs and provide technology training. Schools report how they spend their Technology Allotment through the Public Education Information Management System (PEIMS).

SCHOOL DISTRICTS' TECHNOLOGY ALLOTMENT EXPENDITURES AS REPORTED THROUGH PEIMS	
Instruction	77.3%
Instructional Leadership	4.5%
Instructional Resources & Media Services	3.6%
Curriculum & Staff Development	3.4%
Data Processing Services	4.1%
Facilities/Shared Services	7.0%

It is important for schools to provide professional development so that the investment in hardware and software can impact teaching and learning. A national and state level recommendation is for schools to spend at least 30% of the Technology Allotment for professional development. Schools can use the Allotment for hardware, software and training. However, schools report a lower expenditure on professional development than the recommended 30%, which may be due to schools' current focus on building the technology infrastructure. In addition, the 30% target is a recommendation and not a requirement for schools.

Previously, the Commissioner of Education was authorized to deduct funds from the Technology Allotment for the purpose of supporting the development and implementation of statewide technology initiatives. These technology initiatives include the Texas School Telecommunications Access Resource (T-STAR), the Texas Educational Telecommunications Network (TETN), Technology Preview Centers and Training Programs at the education service centers, the Texas Library Connection (TLC), and the Projects for Educational Technology (PETs). The funding authorization changed with passage of Senate Bill 1 in 1995. School districts now receive their full $30 per ADA and the statewide technology initiatives are funded through appropriations from the Telecommunications Infrastructure Fund (TIF).

Technology Literacy Challenge Fund

The Technology Literacy Challenge Fund (TLCF) was established to help advance the following national goals for technology in education as specified in the national long-range plan for technology, *Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge*:

- all teachers will have the training and support they need to help all students learn through computers and through the information superhighway.
- all teachers and students will have modern computers in their classrooms
- every classroom will be connected to the information superhighway
- effective and engaging software and online resources will be an integral part of every school curriculum.

The TLCF program is administered under Public Law 103-382, Elementary and Secondary Education Act (ESEA), Title III, Part A, Subpart 2.

Funds may be used to:

- acquire technology to support school reform for student improvement
- acquire hardware and software to improve student learning
- acquire connections to telecommunications networks to obtain access to resources and services, including libraries
- provide ongoing professional development for the integration of technology into the curriculum
- provide better educational services for adults and families.

According to federal statute, special consideration is to be given to those districts that display the greatest need for technology and have a larger percentage of economically disadvantaged students than the state average.

The Technology Integration in Education (TIE) grant is the state initiative funded under the federal Technology Literacy Challenge Fund. In 1997, approximately $15.5 million was awarded to Texas school districts or collaboratives in the form of competitive grants. Approximately $33.5 million was awarded in 1998. Awards were made on a competitive basis through a Request for Application process.

Great stuff. I can't thank you enough for the opportunity to be in the best thing that's happened in Panhandle education in our time.

TIE grant participant
Groom ISD

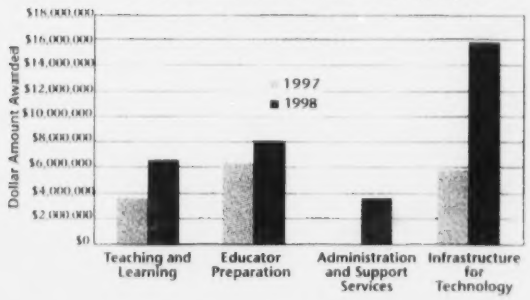
The primary objective of this funding opportunity is to improve student achievement by fully integrating technology into teaching and learning and to ensure that all students are technologically literate by 2010.

The TIE initiative grants must address the recommendations in the *Long-Range Plan for Technology, 1996-2010* in four key areas:

- Teaching and Learning
- Educator Preparation and Development
- Administration and Support Services
- Infrastructure for Technology

FY 1997-98 TECHNOLOGY INTEGRATION IN EDUCATION

Dollar Amount Awarded
FY 1997: Total Amount Awarded = $15,522,887
FY 1998: Total Amount Awarded = $33,617,478



1997 Technology Integration in Education Awards

Nineteen awards, totaling $15.5 million and representing 13 educational service center regions, were made in 1997. Applicants requested a total of $149.8 million. Fifteen of the awards went to collaboratives ranging in size from 2 to 60 members. Award size ranged from $43,352 to $4.5 million. A total of 191 school districts will be impacted by receipt of funds and/or shared services. The implementation of technology in these sites will create a richer technology environment for all schools in Texas, and can provide leadership in the adoption of technology programs and processes for the entire nation.

My fellow teachers not participating in this grant were amazed when told of the scope and size of this project. I feel very fortunate to have been involved. It has enhanced not just my science lessons, but I feel I will seek ways to use this knowledge in all my teaching. A new world has opened up in my classroom.

Jimmie L. Schmidt, TIE grant participant
Childress ISD

1998 Technology Integration in Education Awards

Thirty-eight awards, totaling $33.5 million and representing 19 educational service center regions, were made in 1998. Applicants requested a total of $223 million. Twenty-eight of the awards went to collaboratives ranging in size from 2 to 57 members. Several of the collaboratives contained geographically noncontiguous members utilizing previously implemented technologies to share resources and information. Two awards address special populations. Award size ranged from $76,107 to $3.1 million.

A total of 452 independent school districts, 4 charter schools, and 59 private schools will be impacted by receipt of funds and/or shared services. They represent regions of the state that have historically been underrepresented in technology grant applications and have a great need for technology. The implementation of technology in these sites will foster communication and collaboration through the sharing of information and resources among various entities throughout the state. These sites will provide leadership in the adoption of technology programs and processes that can impact all schools in Texas and the nation.

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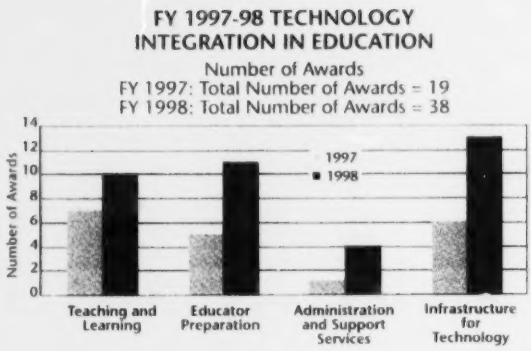
The staff development we have provided to teachers has not only provided them with new tools to use in the classroom, but it has also raised the level of enthusiasm and excitement about what can be done, even in a one-computer classroom. Methods of teaching are visibly changing!

Jane Stephens, TIE grant participant
Canyon, ISD

More information regarding TIE awards and future grant opportunities can be found on the TEA website at http://www.tea.state.tx.us/technology.



Telecommunications Infrastructure Fund

Created in 1995 by House Bill 2128, also referred to as the Public Utility Regulatory Act of 1995, the Telecommunications Infrastructure Fund (TIF) is derived from two different sources: annual assessments from telecommunications utilities; and annual assessments from commercial mobile service providers. TIF will provide $1.5 billion over a ten-year period. A nine-member board administers the fund. The governor, lieutenant governor and speaker of the house appoint board members. The mission of the TIF Board is to help Texas deploy an advanced telecommunications infrastructure by stimulating universal and scaleable connectivity for public schools, higher education, public libraries, and nonprofit healthcare facilities. The TIF Board will also impact technology training programs and encourage quality content that strengthens education, healthcare, and libraries in Texas. Priority is given to rural and underserved populations.

Telecommunications Infrastructure Fund Grant and Loan Program

One of the ways in which TIF promotes universal service in Texas is through its Grant and Loan Program. Responsive to data and information gathered through TIF's Needs Assessment and Evaluation Program, the Grant and Loan Program administers grant and loan offerings that respond directly to clearly established needs.

In the summer of 1996, the TIF Board released its first Request for Proposals (RFP) totaling $25 million for Internet connectivity grants directed toward secondary public schools. To be eligible, applicants had to meet one of the following threshold criteria: 70% or higher level of economically disadvantaged students in the school as reported by TEA; and schools not receiving requested telecommunications services, especially those schools in rural and remote areas.

The response to the first RFP indicated a high level of interest in integrating the Internet into the classroom. A total of 416 applications representing 669 schools were received. Applicants requested a total of approximately $136 million.

After an extensive peer evaluation process, TIF awarded 111 grants in January 1997. Rural and remote school districts represented one-third of the grantees, while two-thirds of the awards went to disadvantaged school districts. Many applicants qualified as both disadvantaged and rural and remote. Unfortunately, the first RFP was perceived as not being "collaborative-friendly". As a result, the number of eligible collaborative proposals was disappointingly low.

In February 1997, TIF released its second RFP totaling $28 million for rural and remote school districts having no (or limited) Internet access. Rural and remote school districts were defined as those school districts having enrollments of 1,000 students or less. Schools in this category represent more than half of the school districts in Texas. Eighty-three percent of the eligible applicants applied for the second RFP, representing a total of approximately

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440 school districts. Twenty-seven collaborative projects submitted proposals for TIF funds, with a total of 262 school districts participating. One hundred and seventy-nine school districts submitted single-district applications. A total of 205 school districts received funds: 69 single districts and 13 collaboratives, representing 136 districts. Grant awards ranged from $47,000 to $5.5 million.

In September 1997, the TIF Board announced a noncompetitive grant opportunity to provide Texas public schools with the necessary equipment to give students access to the Internet. In January 1998, the TIF Board announced the approximately 629 schools approved for funding. The grants would provide wiring for schools, the telecommunications necessary for a networked connection to the Internet, and computers for classrooms. In June 1998, the TIF Board announced two non-competitive opportunities for Texas public schools for technology advancement grants and distance learning grants. Additional information and funding opportunities are available at: http://www.tifb.state.tx.us.

Universal Service Fund Education-Rate Discount Program

The Education Rate (E-Rate) discount program, was established by the 1996 federal Telecommunications Act to provide discounts to eligible K-12 schools and libraries for: telecommunications services; Internet access; and, for the most needy schools, internal networks and connections. The Federal Communications Commission (FCC) administers the E-Rate program, under the Universal Service Fund. The Schools and Libraries Corporation (SLC) was established to administer the program and the FCC contracted with the National Exchange Carrier Association to manage the initial implementation of the E-Rate. E-Rate will assist in making modern telecommunications services affordable for every school and public library.

Under the program, elementary and secondary schools are eligible to receive discounts of between 20 and 90 percent annually. The level of discounts is based upon the percentage of students eligible for participation in the federal free and reduced-price school lunch program and whether the school is urban or rural. The largest discounts are for rural schools with a high percentage of students in the federal lunch program.

The FCC did not recommend a standard telecommunications package but instead concluded that it would be more efficient to let schools and libraries determine what services they need and want. This allows schools and libraries to select from a wide array of telecommunications services and technologies including, for example, basic telephone service, a T1 line, and wireless telecommunications services.

Once an E-Rate application has been accepted and approved, schools will apply the appropriate discount to the cost of their telecommunications services, Internet access, and internal connections and pay the resulting balance to the service providers. The service providers seek reimbursement from the program administrator for the costs of the discounts. The E-Rate program discounts cannot replace funding from other sources but they can be used to support technology plan initiatives. Schools can leverage E-Rate discounts with other local, state and federal funding for technology.

SCHOOLS AND LIBRARIES DISCOUNT MATRIX

How Disadvantaged?		Discount Level	
Students Eligible for National School Lunch Program	Texas campuses in category	Urban discount	Rural discount
0%	3%	20%	25%
1-19%	15%	40%	50%
20-34%	18%	50%	60%
35-49%	19%	60%	70%
50-74%	24%	80%	80%
75-100%	21%	90%	90%

SAMPLE E-RATE SAVINGS FOR PRE-EXISTING CONTRACTS (all costs are annual)	
Example 1: Applicant - high school of 900 students with a 80% poverty level in an urban or rural area	
Current annual charges for:	
Telephone and long distance	$ 10,000
Internet service	5,000
Router and wiring	10,000
Wireless services	6,000
Cable services	280
Total paid now	**$ 31,280**
Discount Amount (90%)	**$ 28,152**
Total district will pay after discount	**$ 3,128**
Example 2: Applicant - school district of 188 students with a 30% poverty level in a rural area	
Current annual charges for:	
Telephone and long distance	$ 10,660
Internet and router	3,500
Distance learning (STEP)	21,600
Cable services	275
Total paid now	**$ 36,035**
Discount Amount (60%)	**$ 21,621**
Total district will pay after discount	**$ 14,414**
Example 3: Applicant - school district of 2,230 students with a 20% poverty level in an urban area	
Current annual charges for:	
Telephone and long distance	$ 42,404
T1 lines	11,760 (5 lines & installation costs)
Internet services	5,000
Wiring and Router (one-time expense for wiring 5 schools and 1 router)	40,000 (additional wiring for the high school)
Total paid now	**$210,124**
Discount Amount (50%)	**$105,062**
Total district will pay after discount	**$105,062**

The Commission determined that eligible schools and libraries should receive discounts on non-content Internet services, such as e-mail. Discounts do not apply to the content that some Internet service providers bundle with the Internet access into a package, unless such a bundled service would be the most cost-effective way to gain access to the Internet. Internal connections, specifically, equipment such as routers, hubs, network file servers, and wireless local area networks needed to transport information within a school or library, are eligible for discounts. Equipment such as computers and software, fax machines, teacher training, upgrades to electrical systems and asbestos removal are not eligible for the discounts. Final decisions on eligible and ineligible services are available from the SLC.

The E-Rate program can provide Texas public schools with significant savings as they purchase and use telecommunications infrastructure. The Texas Education Agency has taken a leadership role in E-Rate by coordinating the program at the state level and by providing accurate and timely information to Texas schools on E-Rate and on the often confusing E-Rate application process.

To provide E-Rate information to the Texas public school system, the Texas Education Agency created a comprehensive information delivery program utilizing several statewide telecommunications networks and technologies. One of the most popular services is the special E-Rate website developed as a part of the TEA homepage. The website provides the latest information and instructions on application forms, special instructions to Texas schools from the SLC, and electronic links to other sites.

In an effort to provide E-Rate information to Texas schools that do not have Internet access, on several occasions TEA mailed printed informational packets to all Texas school districts. These packets contained an E-Rate newsletter, important information from the SLC, and information on the technology plan approval process. Five television programs on E-Rate were also broadcast over the T-STAR Network to schools around the state. Additionally, E-Rate information is provided by education service centers and at education conferences and workshops around the state.

As part of the E-Rate application process, schools are required to submit an approved technology plan. To facilitate this process, the Instructional Technology Division of the Agency assumed the responsibility

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of reviewing and approving the required technology plans for each public school district and education service center that applied for the E-Rate discounts. Using criteria provided by the SLC, a peer review process was developed and implemented to review and approve more than 750 technology plans for the E-Rate program.

As part of its leadership role, the Texas Education Agency organized and facilitated four statewide meetings during the 1997-1998 school year. Representatives attended these coordination meetings from various state agencies, school districts, education service centers, universities, telecommunications companies and associations, education and library associations, private schools, and other entities. Additional coordination activities, information dissemination via the TEA website, T-STAR broadcasts, TETN training sessions and print materials are planned for the coming months to ensure Texas schools have what they need to secure E-Rate discounts.

A number of changes impacting the E-Rate program have occurred over the past several months, including a reduction in the amount of funding collected. The first year of the program was established as January 1, 1998 through December 1, 1998 but recent changes have extended that time period to June 30, 1999. The Schools and Libraries Corporation received over 30,000 applications for the discounts. The processing of those applications is nearing completion and funding commitment letters are due to applicants this fall. Year two of the program is scheduled to begin December 1, 1998.

Due to the complexity of this program, the SLC releases frequent updates and policies and guidelines are distributed through a variety of outreach efforts. The most current information regarding the E-Rate is available on the SLC website at: http://www.slcfund.org and the Customer Service Bureau is available to answer questions at 1-888-203-8100.

Appendices

Technology Acronym Glossary and Directory

ACES - Adult and Community Education System
The ACES tracks and reports the status of students participating in Texas adult education programs via the Texas Education Agency's website.

AEIS - Academic Excellence Indicator System
A system of accountability based primarily on student performance. The AEIS pulls together a wide range of information on the performance of students in each school and district in Texas every year. It also provides extensive information on school and district staff, finances, programs and demographics.

AskTED
A customer-friendly interface to information and reports about individuals, school boards and other entities within the education community that can be found on the Texas Education Agency's website.

ATM - Asynchronous Transfer Mode
Refers to the technology that allows more flexible use of bandwidth for exchange of voice, video and data over telephone lines.

ATM Project
An upgrade of the TEA telecommunications environment that will increase flexibility of the Texas Education Telecommunications Network (TETN) to provide the interactive exchange of video, audio, and data via TEX-AN 2000.

CCSSO - Council of Chief State School Officers
The Council of Chief State School Officers is a nationwide, nonprofit organization composed of public officials who lead the departments responsible for elementary and secondary education in the states, the U.S. extra-state jurisdictions, the District of Columbia, and the Department of Defense Dependents Schools. In representing chief education administrators, CCSSO works on behalf of the state agencies that have primary authority for education in each state.

CEDs - Centers For Educator Development
Centers for Educator Development are statewide curriculum centers that provide resources for the implementation of the Texas Essential Knowledge and Skills in the foundation and enrichment curriculum areas. Centers were established to provide a coordinated system of teacher education and professional development for the state of Texas.

CNPIMS - Child Nutrition Programs Information Management System
The online information management system of the Texas Education Agency's Child Nutrition Programs division, which processes $55 million per month in school food service claims reimbursements to more than 1,000 school districts.

CPAI - Commissioner's Public Access Initiative
The Commissioner's Public Access Initiative is the Texas Education Agency's strategic plan for the implementation of the *Long-Range Plan for Technology, 1996-2010*. The CPAI includes numerous programs and projects, planned and underway, that support each of the Agency's three strategic directions: information access to educational content, business applications, and infrastructure. The Initiative calls for the use of the Internet, the Texas Education Telecommunications Network (TETN), the Texas School Telecommunications Access Resource (T-STAR) and regional networks being developed by the education service centers. These four components form the building blocks of an integrated telecommunications services network designed to support the interactive exchange of data and information throughout the Texas K-12 public school community. The CPAI services network enables public education stakeholders to readily access and use public education information for analysis and decision-making. The initiative is defined by constantly evolving content and services that students, teachers, parents, superintendents, legislators and business leaders need in order to make decisions, to educate, to plan, and to learn.

CPDTs - Centers for Professional Development and Technology
The Centers for Professional Development and Technology (CPDTs) provide field-based preservice and inservice training to student teachers, university professors, and school district administrators and staff. CPDTs are now overseen by the State Board for Educator Certification (SBEC), which was established by the 74th Texas Legislature in 1995 (TEC §21.031).

Data Mart
A data mart is a system designed to enable access to and analysis of a coherent subset of corporate information. The data in the mart represent a subset of the data in the Public Education Data Warehouse, but this data is summarized and structured in ways that enable rapid querying, reporting, and analysis in a particular topic area, such as student information and district finances.

Data Warehouse (also Public Education Data Warehouse or PEDW)
A data warehouse is a repository of data, compiled from a number of system sources, to support information access, reporting and analysis. A data warehouse is deliberately constructed to support analysis of information for research, planning and management purposes.

DIR - Department of Information Resources
The mission of the DIR is to advance the missions of Texas government by serving as a catalyst for improvement, by influencing technology decisions, and by ensuring the most appropriate uses of information resources.

Distance Learning
Distance learning involves the use of technologies, such as video, audio, and/or computer, so that students can participate in the learning process from a location that is distant from the instructor's location. Distance learning systems are usually interactive and are becoming a valuable tool in the delivery of training and education to widely-dispersed students in remote locations or in instances where the instructor cannot travel to the student site.

EMAT - Educational Materials System
The EMAT online system is designed to automate the review and approval of State Board of Education-adopted educational material orders and to accommodate emerging media and delivery vehicles, such as educational software and "electronic textbooks." Web reports will be provided for vendors, ESCs, and districts to reduce postage costs, increase efficiency and provide more information to the public.

E-RATE - Education-Rate
The E-RATE program is a federal program of the Universal Service Fund to assist K-12 schools in the purchase of telephone and other telecommunications services, Internet access, and internal networks and wiring, by providing discounts of 20 to 90 percent.

ESC - Education Service Center

ETAC - Educational Technology Advisory Committee
The ETAC recommends guidelines or standards for the quality, technical specifications, functions, security, and other features of hardware, software, staff development, and other technology-related products and services provided to school districts. ETAC cooperates with designers and publishers of computer hardware and software in developing and making available technology products suited for instructional and administrative purposes.

EvaluTech
A searchable database of curriculum-related instructional materials specifically designed for kindergarten through Grade 12. EvaluTech is available through the joint efforts of the Southern Regional Education Board's (SREB) Education Technology Cooperative and the North Carolina Department of Public Instruction, in collaboration with the departments of education of the SREB states. Member states include: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

FAQs - Frequently Asked Questions

GSC - General Services Commission
The General Services Commission is the state agency that supports other state agencies and local governments. Services provided by GSC include: telecommunications services, construction, leasing, central procurement and environmental services.

ISDN - Integrated Services Digital Network

ISP - Internet Service Provider

LATA - Local Access Transport Area

Library Standards
In the spring of 1995, the 74th Texas State Legislature, through Senate Bill 1, directed the Texas State Library and Archives Commission, in consultation with the State Board of Education, to adopt standards for school libraries. Those standards are to be used in developing, implementing, or expanding school library programs. Districts and campuses use these standards as guidelines to measure the effectiveness of existing library programs and in the creation of new library programs.

PEDW - Public Education Data Warehouse (See Data Warehouse)

PEIMS - Public Education Information Management System
The Public Education Information Management System (PEIMS) is a collection of data from and about the public education system in Texas. The submission of data is required of all school districts. The data standards provide instructions regarding the submission of PEIMS data from school districts to the Texas Education Agency.

PETs - Projects for Educational Technology
The PETs are authorized by Texas Education Code, Chapter 32 - Computers and Computer-Related Equipment, Section 32.035 - Demonstration Programs. The Agency is required to establish demonstration programs to investigate the uses, effectiveness, and feasibility of technologies for education, and, to provide models for effective education using technology. The Agency may design programs to encourage participation by and collaboration among school campuses, school districts, education service centers, the private sector, state and federal agencies, nonprofit organizations and institutions of higher education.

PRI - Primary Rate Interface

RSCCC- Regional Service Center Computer Consortium
Computer software packages, available to Texas public schools through the ESCs, that are compliant with state and federal reporting and accountability requirements, conform to Year 2000, and are fully PEIMS compliant.

SBEC - State Board for Educator Certification
The State Board for Educator Certification (SBEC) was created in 1995 by the 74th Legislature to govern the standards of the education profession. The 15-member appointed board oversees all aspects of public school educator certification, continuing education, and standards of conduct. The certification board is guided by the philosophy that educators will create higher standards for preparation, practice, and conduct than others outside the profession would, and that educators will rigorously uphold these standards. The SBEC is dedicated to creating a system that produces educators who are recognized as professionals. The certification board is organized into four broad areas: educator preparation, assessment and accountability, certification, and investigations and enforcement.

SCR*TEC - South Central Regional Technology in Education Consortium
The South Central Regional Technology in Education Consortium helps educators, administrators, and technology coordinators enhance students' learning with technology. SCR*TEC's free solutions help customers use educational technology to engage and excite students as they enter a learning environment that goes beyond the walls of the classroom. SCR*TEC represents the states of Kansas, Missouri, Nebraska, Oklahoma, and Texas and is one of six Regional Technology in Education Consortia. The U.S. Department of Education, Office of Educational Research and Improvement fund SCR*TEC.

SERC - Satellite Education Resources Consortium
The SERC is a consortium of state and local departments of education and public broadcasting networks created to provide satellite-and Internet-delivered student courses and staff development programs for public school teachers and staff.

SREB - Southern Regional Education Board
Created in 1948 by Southern states, SREB helps government and education leaders work cooperatively to advance education and, in doing so, improve the social and economic life of the region. SREB assists state leaders by directing attention to key issues; collecting, compiling and analyzing comparable data; and conducting broad studies and initiating discussions that lead to recommendations for state and institutional long-range planning, actions and policy proposals. SREB's member states are: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.

SREB Educational Technology Cooperative
The SREB Educational Technology Cooperative is comprised of 32-state higher education and K-12 coordinating and governing boards. The Cooperative focuses on ways to help state leaders create and expand effective uses of technology in schools and colleges. This unique multi-state cooperative, representing more than 3,200 school districts and nearly 800 colleges and universities, monitors and reports on a wide array of educational technology issues and topics. It also initiates and implements technology-oriented projects designed to make wise use of technology, and helps schools and colleges understand the connection between technology and higher student performance.

STAR Center - Support for Texas Academic Renewal Center
The purpose of the STAR Center is to focus energy, expertise and commitment to prepare children for the 21st century by providing support and technical services to the Texas Education Agency, ESCs, and local school districts that implement state and local education reform efforts funded under the Improving America's Schools Act. Funded by the U.S. Department of Education, the Intercultural Development Research Association (IDRA) heads the STAR Center in partnership with RMC Research Corporation and the Charles A. Dana Center at the University of Texas at Austin.

Star Schools Program
The federally-funded Star Schools Program awards grants to encourage improved instruction in mathematics, science, and foreign languages, as well as other subjects, such as literacy skills and vocational education, and to serve undeserved populations, including the disadvantaged, illiterate, limited-English proficient, and individuals with disabilities through the use of telecommunications.

STARLINK
STARLINK is a statewide teleconference network that produces and distributes programming to benefit diverse Texas audiences. As a part of the Texas Association of Community Colleges, STARLINK maximizes the use of existing telecommunications systems to serve higher education, state agencies, and other public entities. The STARLINK network is composed of 50 Texas community college districts as members and five colleges as associate members.

StarNet
StarNet, the newly formed successor to TI-IN, is managed by the United Star Distance Learning Consortium (USDLC), Inc. Through programming produced and supported by Education Service Center, Region 20 in San Antonio, StarNet provides staff development, for-credit distance learning courses and enrichment programming via satellite to over 40 states. The USDLC is a partnership of five state departments of education and Western Illinois University, that have partnered with ESC-20 for many years to provide distance learning through Star Schools grants.

START - Sharing Technology Applications Resources with Teachers
To assist educators in implementing the Technology Applications Texas Essential Knowledge and Skills (TEKS), the Texas Center for Educational Technology (TCET) at the University of North Texas, with support from the Texas Education Agency , has developed the START project. TCET has collaborated with the regional Education service centers , Centers for Educator Development (CEDs), Centers for Professional Development of Teachers (CPDTs), regional laboratories, and Texas school districts in preparing materials to assist curriculum directors, technology directors, principals, librarians and teachers with the implementation of this curriculum and TEKS.

STATE BOARD OF EDUCATION - State Board of Education
The Commissioner of Education and the 15 elected members of the State Board of Education oversee the public education system of Texas in accordance with the Texas Education Code. The Board is responsible for the Long-Range Plan for Public Education. The Long-Range Plan envisions a public education system which promotes student achievement through a reliance on local flexibility, planning and accountability. The plan states that parents and communities play a crucial role in student learning, educators develop the knowledge and expertise to implement programs that ensure all students can learn, districts and campuses are held accountable for student achievement, and state policies and plans support local decision making. The document contains challenging and measurable results to be achieved by the year 2000.

TA TEKS - Technology Applications Texas Essential Knowledge And Skills
The TA TEKS were developed to meet the *Long-Range Plan for Technology, 1996-2010* action for establishing expectations for technology proficiencies by students in kindergarten through Grade 12, including computer-related skills that meet standards established for each high school graduate, by the year 2000.

TAAS - Texas Assessment of Academic Skills
The Division of Student Assessment manages and oversees the development, administration, scoring, and analysis of the statewide assessment program. The statewide assessment program currently includes the TAAS test and end-of-course examinations. TAAS measures the statewide curriculum in reading and mathematics at Grades 3 through 8 and the exit level; in writing at Grades 4, 8, and the exit level; and in science and social studies at Grade 8. Spanish-version TAAS tests are administered at Grades 3 through 6. Satisfactory performance on the TAAS exit level tests is a prerequisite to a high school diploma.

TAC - Texas Administrative Code
The State Board of Education and the Commissioner are assigned specific rulemaking authority under the Texas Education Code. The TAC is the official compilation of all final state agency rules published in the Texas Register. Following its effective date, a rule is entered into the TAC under Title 19, Part II. Title 19 concerns Education, and Part II refers to the Texas Education Agency.

TCET -Texas Center for Educational Technology
The Texas Center for Educational Technology (TCET) was created by the Texas legislature in 1990 to serve as a K-12 technology and educational research and development clearinghouse that disseminates research-based information to districts, schools and classrooms. TCET's funding is provided through contracts with the TEA, contributions from TCET members, and through federal and state grants. The Center focuses on research, development, evaluation and grant support services.

TEC -Texas Education Code
This code applies to all educational institutions supported in whole or in part by state tax funds unless specifically excluded by this code.

Technology Allotment
All school districts in Texas continue to receive a Technology Allotment of $30 per student per average daily attendance (ADA) for the purchase of technology and professional development in support of the goals of The *Long-Range Plan for Technology, 1996-2010*. Technology Allotment funds were available to schools beginning in September 1992.

Technology Applications
The Technology Applications is a required enrichment curriculum under 19 TAC Chapter 74, Curriculum Requirements, adopted by the State Board of Education in 1996. "Technology Applications" is also the term for the graduation requirement credit previously known as computer science, computing proficiency, and/or computing credit.

TEKS - Texas Essential Knowledge and Skills
The curriculum adopted by the State Board of Education for all Texas Schools.

TEKStar
A software package featuring a resource bank of lesson plans and strategies that meet the performance descriptions in the TEKS.

TENET - Texas Education Network
TENET offered dial-up access to the Internet at little or no cost to Texas K-12 educators. Users had full access to the Internet and its tools including electronic mail, file transfer, Gopher and the World Wide Web. TENET provided staff development opportunities in a Train-the-Trainer model. The University of Texas Academic Computing and Instructional Technology Services will take over the technical operations of TENET after December 1998 and will continue to provide services at least through December 1999. A plan for continuing and evolving the TENET resource for educators is under development.

TESS - The Educational Software Selector
TESS is a searchable database designed to assist educators in making informed decisions when selecting and purchasing software.

TETN - Texas Education Telecommunications Network
The Texas Education Telecommunications Network (TETN) is a statewide telecommunications network among the 20 education service centers and the state education agency which provides compressed two-way video/audio and data transmission using dedicated T1 lines with the capabilities to connect to schools and other public institutions. As part of the ATM Project of the Commissioner's Public Access Initiative, TETN has been upgraded to facilitate integration with the ATM technology planned for in the General Service Commission's statewide telecommunications system, TEX-AN 2000, and the regional networks being developed by the ESCs.

TEX-AN 2000
TEX-AN 2000 is the planned upgrade of the existing Texas Agency Network (TEX-AN) III. TEX-AN was installed to meet the telecommunications needs of state government and has since been expanded to include political subdivisions such as cities, counties and school districts. The network has reached the limits of the economies of scale available through the existing network design and the T1 and DS3 technologies. Bandwidth requirements continue to grow, especially for data and video applications. The growth in network traffic and requirements indicate an immediate need to begin the design and implementation of TEX-AN 2000.

TIE - Technology Integration in Education
The TIE initiative is the title of the state initiative administered under Public Law 103-382, Elementary and Secondary Education Act (ESEA), Title III, Part A, Subpart 2 - Technology Literacy Challenge Fund (TLCF). The primary object of this funding opportunity is to improve student achievement by fully integrating technology into teaching and learning and to ensure that all students are technologically literate by 2010.

TIF - Telecommunications Infrastructure Fund
Created in 1995 by House Bill 2128, also referred to as the Public Utility Regulatory Act of 1995, the Telecommunications Infrastructure Fund is derived from two different sources: 1) annual assessments from telecommunications utilities; and, 2) annual assessments from commercial mobile service providers. It is to provide $1.5 billion for telecommunications for public schools, libraries, higher education, and telemedicine.

TIFB - Telecommunications Infrastructure Fund Board
The mission of the Telecommunications Infrastructure Fund Board is to help Texas deploy an advanced telecommunications infrastructure by stimulating universal and scaleable connectivity for public schools, higher education, public libraries, and nonprofit healthcare facilities. The Telecommunications Infrastructure Fund Board will also effect technology-training programs and encourage quality content that strengthens education, healthcare and libraries in Texas. Priority is given to rural and under-served populations.

TI-IN
TI-IN was a satellite-based network that provided for-credit distance learning courses and professional development programming. The network is now operated as StarNet from Region 20 Education Service Center in San Antonio. The United Star Distance Learning Consortium (USDLC) manages StarNet.

TLC - Texas Library Connection
The TLC, a statewide technology initiative administered by the Texas Education Agency, provides current, relevant information resources to Texas school communities enrolled in the project. Students and educators identify, access, and retrieve over 17 million items such as books, videos, and software, held in participating school libraries through a database created for Texas and maintained by Auto-Graphics, Inc. Two other databases are also available: UMI's *ProQuest Direct*, which provides over six hundred full-text magazines, journals, and newspapers and the *Encyclopedia Britannica*, which is updated daily and linked to over 6,000 websites selected by *Britannica's* editors.

TLCF -Technology Literacy Challenge Fund
TLCF is the federal program designed to help advance the national goals for technology in education as specified in the nation's, long-range plan for technology, *Getting America's Students Ready for the 21st Century: Meeting the Technology Literacy Challenge.* This program is administered under Public Law 103-382, Elementary and Secondary Education Act (ESEA), Title III, Part A, Subpart 2.

TPG - Telecommunications Planning Group
The TPG includes the Comptroller, the Department of Information Resources and the General Services Commission. Established by Senate Bill 365, TPG's purpose is to collect and manage telecommunications network configurations and information about existing and planned telecommunications networks throughout state government; establish plans and policies for a system of telecommunications services to be managed and operated by the General Services Commission; and develop a statewide telecommunications operating plan for all state agencies.

T-STAR - Texas School Telecommunications Access Resource
T-STAR is a statewide telecommunications initiative that provides one-way video/two-way audio satellite communications to school districts, education service centers and the Texas Education Agency. The K-12 public education community can access for-credit distance learning courses, curriculum enhancement programming and electronic field trips, and professional development teleconferences from a wide variety of service providers from across the country. Audiences can also tune-in to programming from the Texas Education Agency, which is broadcast over the T-STAR Network.

T-STAR Network Studio
The T-STAR Network studio is a fully operational television production facility that produces and broadcasts live and pre-recorded programming, uplinked via satellite over the T-STAR Network. T-STAR delivers staff development training, Agency news updates and TEA press conferences to audiences across the state simultaneously, via satellite. This one-way video/two-way audio satellite communications system allows audiences to interact live with presenters through a toll-free phone line. T-STAR production services utilize digital and analog equipment for producing programming. A separate, dial-up videoconferencing studio can be used for stand-alone, two-way video/audio videoconference activities or the videoconference activities can be integrated with T-STAR Network broadcast programming.

USDLC - United Star Distance Learning Consortium
The USDLC is a nonprofit educational consortium of five state departments of education and Western Illinois University, who have partnered for many years with Education Service Center, Region 20 in San Antonio, to provide distance learning through Star Schools grants. It includes Florida, Illinois, New Mexico, North Carolina, and Texas.

Y2K - Year 2000

TIE Grant Awards

1997 Awards	1998 Awards
Teaching and Learning FY 1997: $3,502,425 FY 1998: $6,514,719	
Canyon ISD **$312,756** Three-part project that provides online district curriculum, designs a district-wide technology proficiency program, and provides staff development to students, teachers and community members with after-hour programs.	**Calallen ISD Collaborative** **$926,873** A six-school collaborative, with partnerships of several non-profit and state agencies, that stretches from deep East Texas to far West Texas and into the Valley to develop and deliver online curricular materials and training of teachers via the Internet and other distance learning vehicles.
Corsicana ISD **$1,000,000** Continues to develop their existing network with expansion of online resources into the community; establishes distance learning opportunities with Navarro College and provides of staff development.	**Klein ISD** **$716,405** Establishes a staff development model to incorporate technology into all disciplines, with specific strategies aimed at female, at-risk and socio-economically-disadvantaged students through a connection to an intranet consortium of educators, industry and not-for-profit groups via a Municipal Area Network (MAN).
Hillsboro ISD **$57,103** Provides a new aligned science curriculum for Grades 6, 7, and 8 that will address success in high school science. Provides staff development in use of technology and integration strategies.	**Milano ISD** **$196,000** Provides all teachers with workstations equipped with Internet connectivity and summer camps for staff development.
Lockney ISD **$438,143** Provides staff development for secondary teachers in five districts in use of technology in curriculum. Provides all secondary teachers with a desktop computer and each classroom with a bank of computers.	**Carlisle ISD Collaborative** **$744,104** Partners with a noncontiguous district to receive staff development on classroom computer workstations. Establishes laptop checkout program for multimedia development of instructional programs.
Los Fresnos ISD **$644,442** Provides Internet access and training via school-family-community links with video-conferencing capabilities.	**Marshall ISD Collaborative** **$743,248** Establishes a four-district collaborative that provides for electronic connections between schools, libraries and homes to promote reading and other core content areas with appropriate staff development.
Region 10 **$838,000** Delivers online content to teachers via the regional network and staff development on the use of the network and integration of electronic content into curriculum.	**Tenaha ISD Collaborative** **$879,792** Establishes East Central Education Network (ECENET) for videoconferencing, for resource sharing and staff development among seven schools in East Texas.

TIE Grant Awards

1997 Awards	1998 Awards
Teaching and Learning *(continued)*	
Rogers ISD **$211,981** Restructures schools through a global school house concept through Internet access; online mentoring and integration of technology into the curriculum.	**Region 8 Collaborative** **$1,717,250** Expands the Northeast Texas Regional Educational Telecommunications Network (NTxRETN) that links 44 districts, 2 universities, 2 CPDTs, 3 community colleges and various business partners to provide videoconferencing for classroom instruction and professional development.
	Throckmorton ISD **$194,055** Provides for implementation of multimedia equipment, library automation and training of staff with a connection to the public library.
	Lake Worth **$190,367** Creates the Community Access Program to increase the accessibility of information technologies to students, teachers, parents and other community residents by providing Internet access via library connections to individuals in three culturally diverse communities.
	Lago Vista ISD Collaborative **$206,625** Establishes the Northwest Technology Consortium collaborative of four, small Central Texas districts to implement a model for integrating technology into all curriculum areas and to provide ongoing staff development and ongoing support at the campus level.

TIE Grant Awards

1997 Awards	1998 Awards
Educator Preparation FY 1997: $6,256,429 FY 1998: $7,915,697	
Austin ISD **$587,235** Implements a video network to deliver staff development within the district. Staff development focuses on the use of the network and use of alternative staff development strategies.	**United ISD Collaborative** **$749,613** Installs distance learning classrooms and provides for teacher workstations with accompanying staff development for teachers and parents. Includes adult literacy classes after traditional school hours.
Boys Ranch ISD **$232,568** Implements an infrastructure to connect to district's LAN and the Internet. Offers training in technology integration into the curriculum.	**Aldine ISD** **$315,602** Creates technology centers to provide training and staff development for the purpose of infusing technology into constructivist, student-centered teaching strategies, including adult literacy.
Graham ISD **$726,400** Creates technology training in each rural district with networked multimedia stations for the delivery of staff development.	**Goose Creek ISD** **$595,623** Establishes teacher workstations and staff development for infusion of technology into the TEKS. Includes multiple partnerships with community and community college.
Irving ISD **$210,226** Develops a staff development model which focuses on the sharing of technology-related interdisciplinary projects which assist in the integration of technology into the curriculum.	**Houston ISD** **$441,737** Establishes a multimedia center linked to computer workstations in the classrooms with training available for teachers and community members in an extended school year program.
Region 16 **$4,500,000** Installs two-way interactive videoconferencing network in the Panhandle; with extensive staff development and sharing of online resources.	**Kountze ISD Collaborative** **$1,852,043** Creates a technology infrastructure among eight school districts and five private schools to deliver staff development based on various technology proficiencies that are accessible through multiple delivery systems.
	Region VI Collaborative **$898,241** Expands the regional network infrastructure that connects 56 districts and 1 university with the ESC to provide videoconferencing and Internet access for professional development and support services using distance learning technologies.

TIE Grant Awards

1997 Awards	1998 Awards
Educator Preparation *(continued)*	
	Crandall ISD Collaborative **$223,763** Establishes technology-supported classrooms with student groups, creating multidisciplinary, technology-based projects. Resources are to be shared among three small, rural districts.
	Lockhart ISD **$202,298** Provides for connected classroom computer workstations with accompanying staff development for teachers. Provides open-access, in the evening, to library and computers for community members and additional staff development.
	Texas School for the Blind and Visually Impaired **$530,022** Creates a training and distance learning facility to share expertise and resources with field-based educators, preservice educators, families and local school districts in the use of adaptive/augmentative devices associated with special populations.
	Paint Creek ISD **$76,017** Provides resources for staff development with technology-training for parents for home support in technology instructional activities.
	Region 18 Collaborative **$2,030,738** Improves access to teaching and learning opportunities for students, educators and communities through expansion of the regional network to include interactive videoconferencing and distance learning technologies and provides training and professional development in the integration of technology into the curriculum.

TIE Grant Awards

1997 Awards	1998 Awards
Administration/Support FY 1997: $43,352 FY 1998: $3,462,790	
Shelbyville ISD **$43,352** Establishes a district-wide communication network and provides community access to school-related information and community training.	**Region 5 Collaborative** **$937,662** Extends the Southeast Texas Telecommunications Education Network (SETTEN) to connect the ESC with 11 districts and 1 university to provide professional development and degree programs—including professional development for the TEKS, concurrent enrollment courses, and community access to training for groups such as firefighters and emergency medical technicians.
	Lufkin ISD **$494,557** Establishes a program to use technology for data gathering and analysis and trains parents, administrators and elementary teachers in the use of this information for decision-making purposes.
	Region 14 Collaborative **$185,656** Implements a technology troubleshooting staff development project to provide technical assistance and training for the West Texas Telecommunications Consortium (WTTC) that includes 42 school districts, a private school and the ESC.
	Region XV Collaborative **$1,844,915** Expands the regional network infrastructure through NetXV to provide additional administrative and support services, training and staff development in technical, instructional, and programmatic aspects of videoconferencing, and expanded community use of the infrastructure.

TIE Grant Awards

1997 Awards	1998 Awards
Infrastructure **FY 1997: $5,720,681**	**FY 1998: $15,724,272**
Bryan ISD **$572,599** Creates a technology infrastructure to deliver staff development using multiple delivery mechanisms including LAN, satellite and fax.	**Region Two Collaborative** **$1,281,130** Establishes a regional network infrastructure for 19 districts to enhance local and wide area networks, Internet connectivity and provide professional development, library automation and computer workstations.
Cherokee ISD **$800,000** Creates a LAN at each of the six districts with inclusion of staff development on the use of the network and delivery of curriculum and staff development via the network.	**Region III Collaborative** **$1,269,705** Establishes a regional network infrastructure for 38 districts, 16 private schools and 3 public libraries that includes Internet access in the library, workstations for students and teachers, library automation and professional development. Major emphasis of resource sharing is through the Texas Library Connection.
Lingleville ISD **$508,334** Develops of LANs and WANs with provision for direct access to the Internet and a networked computer for each teacher.	**Hubbard ISD** **$173,626** Establishes a technology infrastructure for Internet connectivity in this K-8 district.
Region 8 Collaborative **$1,652,314** Collaborative effort to establish telecommunications infrastructure with training for use of the network and distance learning instructional strategies.	**Electra ISD** **$191,909** Creates a technology infrastructure to provide Internet connectivity to teachers and community members. Staff development is provided through a teacher/community mentoring staff development model.
Region 14 Collaborative **$1,387,434** Collaborative effort to establish telecommunications infrastructure, and provide training regarding distance learning instructional strategies and use of the network.	**Region IX Collaborative** **$1,089,913** Expands the regional network infrastructure that links 36 districts and the ESC to provide technology-training in rural districts and opportunities for advanced placement courses, foreign languages, upper-level math and science courses and additional professional development. Plans include linking to several colleges and universities as well as providing GED preparation and parenting and life skills.

TIE Grant Awards

1997 Awards	1998 Awards
Infrastructure *(continued)*	
Star ISD **$800,000** Creates of a LAN at each of the six districts with inclusion of staff development on use of the network and delivery of curriculum and staff development via the network.	**Allen ISD/Laredo ISD Collaborative $989,418** Establishes a virtual district between Allen ISD and Laredo ISD to share staff development and instructional resources through teleconferencing and video connections.
	Dublin ISD **$519,797** Establishes a technology infrastructure with Internet connectivity to connect universities and Erath county school districts, plus local business, parents and community partners to provide staff development for utilization of telecommunications.
	Texas School for the Deaf **$588,432** Establishes a technology infrastructure with videoconferencing capabilities to the desktop, to provide access to information and training to educators associated with special populations.
	Hawley ISD **$164,161** Provides for connected classroom computer workstations with accompanying staff development. Teachers produce and share lesson plans and student work.
	Region 12 Collaborative **$2,811,995** Expands the Central Texas Educational Network (CTEN) that links 49 districts, private schools, higher education and other public and private agency partners to the ESC to provide professional development, expanded curriculum opportunities and access to resources throughout the region.
	Region 17 Collaborative **$2,380,727** Expands the regional network infrastructure through installation of a two-way interactive video network and provides basic computer training, Internet training and integration of resources into the curriculum, multimedia training, interactive video training in both one-way video (satellite) and two-way video (videoconferencing), and curriculum development.

TIE Grant Awards

1997 Awards	1998 Awards
Infrastructure *(continued)*	
	El Paso ISD **$1,085,910** Combines library skills and TEKS through the formation of teacher/librarian teams that are connect and exchange information through the Internet. Emphasis is on use of Texas Library Connection resources and infusion into the curriculum.
	Region 20 Collaborative **$3,177,549** Establishes the regional telecommunications hub of the South Texas Academic Resource Telecommunications Network (STARTnet) for voice, video and data and plans for regional connectivity among 52 districts, 4 private schools, 2 charter schools, 2 community colleges and planning partners. Provides a Technical Training Institute and training for TEKS implementation and technology integration and coordinates expanded distance learning opportunities for students and staff.

Districts Enrolled in the Texas Library Connection

Abbott ISD
Abilene ISD
Academy ISD
Alamo Heights ISD
Aldine ISD
Aledo ISD
Alice ISD
Alief ISD
Allen ISD
Alpine ISD
Alvin ISD
Amarillo ISD
Anderson-Shiro CISD
Andrews ISD
Angleton ISD
Anna ISD
Anthony ISD
Archer City ISD
Arlington ISD
Arp ISD
Atlanta ISD
Aubrey ISD
Austin ISD
Avery ISD
Avinger ISD
Axtell ISD
Azle ISD
Ballinger ISD
Bandera ISD
Bangs ISD
Banquete ISD
Barbers Hill ISD
Bastrop ISD
Bay City ISD
Beaumont ISD
Beeville ISD
Bells ISD
Bells ISD
Benavides ISD
Benjamin ISD
Big Sandy ISD
Birdville ISD
Bland ISD
Blooming Grove ISD
Blue Ridge ISD
Blum ISD
Boling ISD
Bonham ISD
Borger ISD
Bosqueville ISD
Bowie ISD
Boys Ranch ISD
Brackett ISD
Brady ISD
Brazos ISD
Brazosport ISD
Breckenridge ISD
Bremond ISD
Brenham ISD
Bridgeport ISD
Broaddus ISD
Brookeland ISD
Brookesmith ISD
Brownwood ISD
Bryson ISD
Buckholts ISD
Buffalo ISD
Bullard ISD
Buna ISD
Burkburnett ISD
Burkeville ISD
Burnet CISD
Burton ISD
Bynum ISD
Caddo Mills ISD
Calallen ISD
Caldwell ISD
Calhoun County ISD
Callisburg ISD
Calvert ISD
Cameron ISD
Campbell ISD
Canadian ISD
Canton ISD
Carlisle ISD
Carrizo Springs CISD
Carroll ISD
Carrollton-Farmers Branch ISD
Catholic Diocese Of Fort Worth
Cedar Hill ISD
Celina ISD
Center Point ISD
Centerville ISD
Central Heights ISD
Cherokee ISD
Childress ISD
Chilton ISD
China Spring ISD
Chisum ISD
Christoval ISD
City View ISD
Clarendon CISD
Clarksville ISD
Claude ISD
Clear Creek ISD
Cleburne ISD
Clifton ISD
Clint ISD
Coldspring-Oakhurst CISD
Coleman ISD
College Station ISD
Colmesneil ISD
Columbia-Brazoria ISD
Columbus ISD
Comal ISD
Comfort ISD
Commerce ISD
Community ISD
Como-Picton CISD
Comstock ISD
Connally CISD
Conroe ISD
Cooper ISD
Coppell ISD
Copperas Cove ISD
Corpus Christi ISD
Corrigan-Camden ISD
Corsicana ISD
Crandall ISD
Crane ISD
Cranfills Gap ISD
Crawford ISD
Crockett Co CISD
Crockett ISD
Crowell ISD
Crowley ISD
Crystal City ISD
Cuero ISD
Dalhart ISD
Dallas ISD
Damon ISD
Danbury ISD
Dawson ISD
Dayton ISD
Decatur ISD
Dekalb ISD
Denison ISD
Denton ISD
Desoto ISD
Detroit ISD
Devine ISD
Deweyville ISD
D'hanis ISD
Diboll ISD
Dickinson ISD
Dilley ISD
Diocese Of Beaumont
Diocese Of El Paso
Diocese Of Galveston
Diocese Of Victoria
Dodd City ISD
Donna ISD
Dripping Springs ISD
Duchesne Academy
Duncanville ISD

Eagle Pass ISD
Eanes ISD
Early ISD
East Central ISD
Eastland ISD
Ector County ISD
Eden CISD
Edgewood ISD
Edgewood ISD
Edinburg CISD
Edna ISD
El Campo ISD
El Paso ISD
Elgin ISD
Elkhart ISD
Ennis ISD
Era ISD
Eustace ISD
Evadale ISD
Everman ISD
Falls City ISD
Fannindel ISD
Farmersville ISD
Farwell ISD
Fayetteville ISD
Floresville ISD
Flour Bluff ISD
Forestburg ISD
Forney ISD
Forsan ISD
Fort Bend ISD
Fort Hancock ISD
Fort Stockton ISD
Fort Worth ISD
Fredericksburg ISD
Friendswood ISD
Frisco ISD
Frost ISD
Fruitvale ISD
Gainesville ISD
Galveston ISD
Ganado ISD
Garland ISD
Gatesville ISD
Georgetown ISD
Gholson ISD
Giddings ISD
Giddings State School
Gilmer ISD
Gladewater County-Line ISD
Glasscock Co ISD
Glen Rose ISD
Godley ISD
Goliad ISD
Gonzales ISD
Goose Creek CISD
Graham ISD
Granbury ISD
Grand Prairie ISD
Grand Saline ISD
Grape Creek-Pulliam ISD
Greenville ISD
Groesbeck ISD
Groveton ISD
Gruver ISD
Gunter ISD
Hallettsville ISD
Hamilton ISD
Hamshire-Fannett ISD
Harlandale ISD
Harleton ISD
Harlingen CISD
Harmony ISD
Harrington Library Consortium
Hart ISD
Hartley ISD
Hawkins ISD
Hays CISD
Hearne ISD
Hemphill ISD
Henderson ISD
Hereford ISD
Hico ISD
Hidalgo ISD
Higgins ISD
Highland Park ISD
Highland Park ISD
Hillsboro ISD
Holliday ISD
Honey Grove ISD
Houston ISD
Hubbard ISD
Hudson ISD
Humble ISD
Huntington ISD
Huntsville ISD
Hurst-Euless-Bedford ISD
Hutto ISD
Industrial ISD
Ingram ISD
Iowa Park CISD
Iraan-Sheffield ISD
Iredell ISD
Irion Co ISD
Irving ISD
Itasca ISD
Jacksboro ISD
Jacksonville ISD
Jarrell ISD
Jayton-Girard ISD
Jefferson ISD
Jim Ned CISD
Johnson City ISD
Jonesboro ISD
Joshua ISD
Jourdanton ISD
Judson ISD
Junction ISD
Karnes City ISD
Katy ISD
Kaufman ISD
Keene ISD
Kenedy ISD
Kenedy ISD
Kermit ISD
Kilgore ISD
Kirbeyville CISD
Klein ISD
Knippa ISD
Knox City-O'Brien ISD
Kountze ISD
Kress ISD
Krum ISD
La Grange ISD
La Joya ISD
La Porte ISD
La Pryor ISD
La Vega ISD
La Vernia ISD
Lago Vista ISD
Lake Travis ISD
Lake Worth ISD
Lamar CISD
Lamesa ISD
Lazbuddie ISD
Leander ISD
Leggett ISD
Leon ISD
Lewisville ISD
Liberty Hill ISD
Linden-Kildare CISD
Lingleville ISD
Little Cypress-Mauriceville CISD
Little Elm ISD
Littlefield ISD
Llano ISD
Lockhart ISD
Lometa ISD
Longview ISD
Lorena ISD
Los Fresnos CISD
Louise ISD
Lovejoy ISD
Lufkin ISD
Luling ISD
Lyford ISD
Mabank ISD
Madisonville ISD
Mansfield ISD
Marble Falls ISD
Marfa ISD
Marion ISD
Marlin ISD
Marshall ISD
Mason ISD
Matagorda ISD
Mathis ISD
May ISD
Maypearl ISD
McAllen ISD

McCamey ISD
McKinney ISD
Medina ISD
Medina Valley ISD
Megargel ISD
Melissa ISD
Menard ISD
Mercedes ISD
Meridian ISD
Merkel ISD
Mesquite ISD
Mexia ISD
Meyersville ISD
Midland ISD
Midway ISD
Milano ISD
Mildred ISD
Miles ISD
Milford ISD
Mineola ISD
Mineral Wells ISD
Mission CISD
Monahans-Wickett-Pyote ISD
Montgomery ISD
Moody ISD
Morton ISD
Motley CISD
Moulton ISD
Mount Pleasant ISD
Mount Vernon ISD
Muenster ISD
Mullin ISD
Mumford ISD
Munday ISD
Nacodoches ISD
Navarro ISD
Navasota ISD
Nederland ISD
New Boston ISD
New Braunfels ISD
New Caney ISD
New Diana ISD
New Waverly ISD
Newton ISD
Nixon-Smiley CISD
Nocona ISD
North East ISD
North Forest ISD
North Zulch ISD
Northside Baptist
Northside ISD
Northwest ISD
Nueces Canyon ISD
Oakwood ISD
Odem-Edroy ISD
Oglesby ISD
Olfen ISD
Olney ISD
Onalaska ISD
Orange Grove ISD
Orangefield ISD
Ore City ISD
Paint Rock ISD
Paisano Consortium
Palacios ISD
Palmer ISD
Panhandle ISD
Paradise ISD
Paris ISD
Pasadena ISD
Patton Springs ISD
Pawnee ISD
Pearland ISD
Pecos-Barstow-Toyah ISD
Penelope ISD
Perrin-Whitt CISD
Perryton ISD
Petrolia ISD
Pflugerville ISD
Pharr-San Juan-Alamo ISD
Pilot Point ISD
Pine Tree ISD
Pittsburg ISD
Plainview ISD
Plano ISD
Pleasant Grove ISD
Pleasanton ISD
Poolville ISD
Port Aransas ISD
Port Arthur ISD
Post ISD
Poteet ISD
Pottsboro ISD
Prairiland CISD
Premont ISD
Priddy ISD
Princeton ISD
Pringle-Morse CISD
Progreso ISD
Prosper ISD
Quanah ISD
Queen City ISD
Randolph Field ISD
Ranger ISD
Rankin ISD
Reagan ISD
Red Oak ISD
Redwater ISD
Refugio ISD
Region 1 Esc
Region 2 Esc
Region 3 Esc
Region 4 Esc
Region 5 Esc
Region 6 Esc
Region 7 Esc
Region 8 Esc
Region 9 Esc
Region 10 Esc
Region 11 Esc
Region 12 Esc
Region 13 Esc
Region 14 Esc
Region 15 Esc
Region 16 Esc
Region 17 Esc
Region 18 Esc
Region 19 Esc
Region 20 Esc
Rice CISD
Rice ISD
Richardson ISD
Rio Grande City ISD
Rio Vista ISD
River Oaks Baptist
River Road ISD
Riviera ISD
Robert Lee ISD
Robinson ISD
Robstown ISD
Roby CISD
Rochelle ISD
Rockdale ISD
Rogers ISD
Roma ISD
Round Rock ISD
Round Top-Carmine ISD
Royal ISD
Rusk ISD
Sabinal ISD
Salado ISD
Sam Rayburn ISD
San Angelo ISD
San Antonio ISD
San Bentio CISD
San Diego ISD
San Elizario ISD
San Felipe-Del Rio CISD
San Marcos CISD
San Saba ISD
Sanger ISD
Santa Anna ISD
Santa Gertrudis ISD
Santa Maria ISD
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Schulenburg ISD
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Sherman ISD
Silsbee ISD
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Smyer ISD
Snook ISD

Snyder ISD
Socorro ISD
Somerset ISD
Somerville ISD
Sonora ISD
South Texas ISD
Southside ISD
Splendora ISD
Spring Branch ISD
Spring Hill ISD
Springtown ISD
Spurger ISD
St Andrews Episcopal School
St Pius X
Stafford Msd
Stamford ISD
Star ISD
Sterling City ISD
Sulphur Springs ISD
Sunnyvale ISD
Sunray ISD
Sweeny ISD
Sweetwater ISD
Taft ISD
Talco-Bogata ISD
Tarkington ISD
Tatum ISD
Taylor ISD
Teague ISD
Tenaha ISD
Terrell County ISD
Terrell ISD
Texarkana ISD
Texas City ISD
Texas School For The Blind
Thorndale ISD
Three Rivers ISD
Throckmorton ISD
Tidehaven ISD
Tom Bean ISD
Tomball ISD
Tornillo ISD
Trinity Episcopal
Trinity ISD
Troup ISD
Troy ISD
Tulia ISD
Tyler ISD
Union Grove ISD
Union Hill ISD
United ISD
Utopia ISD
Uvalde CISD
Valley View ISD
Van Alstyne ISD
Van ISD
Vega ISD
Venus ISD
Veribest ISD
Victoria ISD
Vidor ISD
Waco ISD
Wall ISD
Waller ISD
Waskom ISD
Water Vally ISD
Waxahachie ISD
Weatherford ISD
Wellington ISD
Weslaco ISD
West Hardin Co CISD
West ISD
West Orange-Cove CISD
West Oso ISD
Wharton ISD
Wheeler ISD
White Oak ISD
White Settlement ISD
Whitney ISD
Wichita Falls ISD
Willis ISD
Wilson ISD
Wimberley ISD
Windthorst ISD
Wink-Loving ISD
Winona ISD
Winston School, San Antonio
Winters ISD
Woden ISD
Wolfe City ISD
Woodsboro ISD
Woodville ISD
Wylie ISD
Wylie ISD
Yoakum ISD
Yoakum ISD
Zapata CISD

Long-Range Plan for Technology, 1996-2010

Implemented through the Commissioner's Public Access Initiative

Authorized Under Texas Education Code
Chapter 32

"To prepare students for the 21st century, it is the policy of this state that a superior education should be available to all students under a thorough and efficient system of public education. Educational resources shall be devoted to the maximum extent possible to the instruction of students. To accomplish those purposes, public education must use, in a comprehensive manner, appropriate, accessible technology in all aspects of instruction, administration, and communication."

Texas Education Agency
1701 North Congress Avenue
Austin, Texas 78701-1494

September 1998

Current Status of the Long-Range Plan for Technology

Authorized Under Texas Education Code, Chapter 32

Initiatives	Description	Purpose	Hardware	Funding Level
TEC 14.021-Development of Long-Range Plan LONG-RANGE PLAN FOR TECHNOLOGY	The 74th Legislature charged the SBOE with developing a long-range plan for technology for: • acquiring and using technology; • fostering computer literacy so that by the year 2000 every high school graduate will have computer-related skills that meet Board standards; • identifying and, through regional education service centers, distributing information on emerging technology; and • accessibility to technology by students with disabilities. In accordance with legislation passed in 1985, the State Board of Education developed and adopted the *Long-Range Plan for Technology, 1988-2000.*	The *Long-Range Plan for Technology, 1988-2000* provided a framework for meeting educational needs through technology. The plan focused on building the infrastructure and partnerships necessary to bring technology into the classroom. Priority areas of application for the technology, as specified in the plan, focus on classroom instruction, instructional management, distance learning and communications. Schools have developed district and campus plans based on the goals and objectives outlined in the *Long-Range Plan for Technology, 1996-2010.*	The technologies addressed in the plan and utilized in Texas schools include computer-based systems, devices for storage and retrieval of massive amounts of information, telecommunications facilities for audio-, video-, and information-sharing and other electronic media devised by the year 2000 that can help meet the instructional and productivity needs of public education.	
TEC 32.001-Development of Long-Range Plan	Due to legislation at the state and federal levels, developments in technology, increased expectations by business and industry, changes in the public education system, changes in higher education and community needs, the *Long-Range Plan for Technology, 1996-2010* was developed and adopted by the State Board of Education in November 1996.	The fundamental goal of the *Long-Range Plan for Technology 1996-2010* is to enhance students' acquisition of knowledge through technology. The plan focuses on four key areas: • Teaching and Learning • Educator Preparation and Development • Administration and Support Services • Infrastructure for Technology		

Current Status of the Long-Range Plan for Technology

Authorized Under Texas Education Code, Chapter 32

Initiatives	Description	Purpose	Hardware	Funding Level
TEC 14.063 - Technology Allotment TECHNOLOGY ALLOTMENT In 1995, revisions to the Texas Education Code moved the Technology Allotment to TEC 31.021 - to be paid from the Textbook Fund	Technology Allotment funds, established during the Sixth-Called Session of the 71st Texas State Legislature, provide $30 per student for technology. These funds were originally intended to increase incrementally each year, up to $50 per student. Subsequently, the funds were held at $30 per student. Allotment funds may be used only for hardware, software, courseware, training, and related services. At least 75% of the Allotment is to be used to provide classroom instructional services and programs, and may be used for technology staff development. The Allotment funds may be used for the purchase of electronic textbooks and technological equipment that contributes to student learning; for providing access to technological equipment for instructional use; and, to pay for training educational personnel directly involved in student learning in the appropriate use of electronic textbooks.	The Technology Allotment was established to provide equal access for students, teachers and administrators to teaching and learning tools of high quality and information resources through the application of computers and emerging technology; and to improve student productivity throughout the state. All school districts in Texas are eligible to receive a technology allotment, currently $30 per student, for the purchase of technology in support of the goals of *The Long-Range Plan for Technology.*	Networked and stand-alone computers, CD-ROM and laserdisc players, modems, LCD panels, telecommunications equipment, other related peripherals, instructional software, and emerging technologies. Electronic textbook is defined as: computer software, interactive videodisc, magnetic media, CD-ROM, courseware, online services, an electronic medium, or other means of conveying information to the student through electronic means. Technological equipment is defined as hardware devices or equipment necessary for instructional use to gain access to or enhance the use of an electronic textbook.	$87,970,000* (FY '93) Avg. $27 per student $85,970,000* (FY '94) Avg. $26 per student $80,150,000* (FY '95) Avg. $24 per student $103,110,000* (FY '96) $30 per student $105,570,000* (FY '97) $30 per student $107,690,000* (FY '98) $30 per student $109,480,000* (FY '99) $30 per student * total $ sent to districts

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC INFORMATION ACCESS	*INFORMATION ACCESS* The Information Access component of the Commissioner's Public Access Initiative will result in the creation of rich information resources, ranging from clearinghouses for best practices to data held in Agency databases, which can be easily and quickly accessed by educators across the state. The Agency will create a Public Education Data Warehouse (PEDW) and provide both query and analysis tools that will enable all interested stakeholders to access data that they need to support effective decision-making. The PEDW will provide longitudinal data about the public education system at both a detailed and an aggregate level that can be used to identify trends and support benchmarking for best practices. PEDW will be designed to provide security for confidential information.	Information held in Agency databases is a key public asset. That information must be made easily and quickly available to stakeholders so that it can be used to make decisions—in classrooms, in boardrooms, in homes and in the Capitol—that will result in improved student performance and increased efficiency of the public education system. The PEDW will be located at the Agency but will be accessible to educators, policy makers and the public through both the Internet and the Agency's intranet/extranet, as appropriate.	Hardware and software for PEDW, data mining, query and analysis tools have not yet been selected.	$1,850,000* (FY '98) $2,000,000** (FY '99) $10,135,000 TIFB grant *The FY '98 funding level includes $850,000 in IBM Reinventing Education 2 grant funds and $1,000,000 of Agency discretionary funds ** The FY '99 funding is from Agency discretionary funds

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE - TEC 32.032 - Electronic Information System TEXAS EDUCATION NETWORK (TENET)	INFORMATION SERVICES The Electronic Information Transfer System known as TENET was used to transfer information among school districts, regional education service centers, and other education-related entities and state agencies. In 1990, the Texas Education Agency, in cooperation with the University of Texas at Austin, pioneered the use of telecommunications to provide public educators with access to educational resources. By 1995, the Internet evolved to become the most cost-effective medium for providing all public educators with access to telecommunications services and resources. In 1996, the Agency identified the Internet as the new backbone for the Electronic Information System and the Commissioner's Public Access Initiative. Following a phase-out period, TEA ended its funding support of TENET in August 1998. Each regional education service center maintains a direct connection to the Internet. In addition, more than 900 independent school districts or consortiums currently have direct connections to the Internet.	Classroom teachers used TENET to access instructional materials to enhance classroom lessons. Changes in the telecommunications industry and the Internet now provide more cost-effective and robust access through direct connections and other service providers. Through collaborative efforts with educators in the state, the Agency supports the use of telecommunications as an instructional application that extends learning beyond physical barriers and time constraints. Agency resources have been redirected to: • Develop and expand school district and campus access to the Internet; • Develop and provide Texas educators with access to a host of content-rich, Internet-based resources.	Computer, modem and an Internet Service Provider (ISP) or a Local Area Network with a direct connection to the Internet.	$1,200,000 (FY '93) $2,500,000 (FY '94) $3,640,000* (FY '95) $3,500,000 (FY '96) $4,073,000** (FY '97) $2,450,000*** (FY '98) $0 (FY '99) * Includes $1,650,000 for Connectivity grants ** Includes $423,000 from federal funds *** Includes TENET and transition costs for e-mail and transport

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.033 - Integrated Telecommunications System TEXAS SCHOOL TELECOMMUNICATIONS ACCESS RESOURCE (T-STAR) The Agency's integrated telecommunications plan provides for the migration of Internet access, T-STAR and TETN into a single Integrated Telecommunications System for Texas educators.	*INFORMATION SERVICES* The Integrated Telecommunications System includes T-STAR. Established in 1990, T-STAR is a statewide satellite network that provides one-way video/two-way audio communication services for school districts, regional education service centers, and the Agency. T-STAR also includes two-way audio/two-way videoconferencing capabilities that can be used independently or integrated with satellite broadcasts. Plans include the transition of T-STAR to digital format to increase access and lower operating costs. This transition will include upgrade of the T-STAR broadcast facility as well as downlink sites. Additional training and support is planned related to the digital conversion.	T-STAR allows more than 1,000 Texas school districts and all 20 regional education service centers to access distance learning courses, professional development training, and a variety of instructional television programming available via satellite. T-STAR equipment is designed to allow schools to receive satellite-delivered educational programming from a great variety of program providers across the country, including the Texas Education Agency. Current focus is to provide training and information to the schools on how to use the equipment, how to select appropriate programming for their local school, and how to effectively utilize the programs in the classrooms.	Steerable, dual-band (C and Ku) satellite antenna and related TVRO equipment, receiver, TV/monitor, VCR, remote controls, computer, software, and a dedicated phone line.	$1,500,000 (FY '93) $2,500,000 (FY '94) $7,670,000 (FY '95) $2,250,000 (FY '96) $1,750,000 (FY '97) $1,750,000 (FY '98) $3,000,000 (FY '99)

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.033 - Integrated Telecommunications System - CONTINUED TEXAS EDUCATION TELECOMMUNICATIONS NETWORK (TETN)	*INFORMATION SERVICES* The Integrated Telecommunications System also includes TETN. Established in 1995, TETN is a statewide telecommunications network among the 20 regional education service centers and TEA that provides compressed two-way video/audio and data transmission using dedicated T1 lines, with the capabilities to connect to schools and other public institutions. TETN is being enhanced to provide the telecommunications environment that supports the interactive transfer of audio, video, and data between TEA, the ESCs, districts, individual campuses, and other public institutions.	TETN provides a dedicated telecommunications infrastructure between regional education service centers and TEA, addressing the expanding need to exchange information and improve communication. TETN improves communications, and reduces travel expenses and staff travel time for schools, regional education service centers and TEA. TETN is also used for electronic transfer of school data between regional education service centers and TEA. The enhancements to TETN will facilitate interconnection with regional and district networks and maximize the public education system's use of the telecommunications environment.	Networked CODECs with 21 full-bandwidth T1 lines, multiplexers, routers, cameras, control panels, modems, computers, fax machines, TV/monitors, software, and VCRs.	$2,000,000 (FY '95) $200,000 (FY '96) $50,000 (FY '97) $950,000 (FY '98) $1,600,000 (FY '99)

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.034 - Center for Educational Technology TEXAS CENTER FOR EDUCATIONAL TECHNOLOGY (TCET)	*INFORMATION SERVICES* TCET is a research center established in 1990. Located at the University of North Texas in Denton, TCET works in partnership with the University of Texas at Austin. Other universities participate in collaborative research activities. 100% of districts and all 20 regional education service centers are TCET members.	The mission of TCET is to promote research and development (R&D) collaboration between industry and education in order that technologies and applications can be created and adapted for integration into the public school system. TCET conducts action research on the effectiveness and impact of educational and informational technologies; serves as a K-12 technology and educational reform R&D clearinghouse that disseminates research-based information to the school and classroom levels; assists in the development of 21st century educational models, incorporating appropriate technologies; and facilitates collaborative efforts to improve K-12 educational programs via technology.	A variety of TCET information can be accessed on the World Wide Web at www.tcet.unt.edu. and is also distributed through CD-ROM and print materials.	$500,000 (FY '93) $400,000 (FY '94) $400,000 (FY '95) $400,000 (FY '96) $400,000 (FY '97) **$0** (FY '98) Baseline funding for TCET was eliminated. TCET provides products and services through contracts with various educational entities.
THE TRI-STATE MULTIMEDIA LEP PROJECT	The California Department of Education, the Florida Department of Education, and the Texas Education Agency have joined together to develop a multimedia, curriculum-based learning package for the Limited-English-Proficient (LEP) student population.			

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.035 - Demonstration Programs DEMONSTRATION PROGRAMS	*INFORMATION SERVICES* Senate Bill 1, passed by the 74th Texas Legislature and codified as Texas Education Code, Section 32.035(a), calls for the Agency to establish demonstration programs.	Demonstration programs shall: (1) investigate the uses, effectiveness, and feasibility of technologies for education; and, (2) provide models for effective education using technology. A focus of these projects, as authorized in TEC Section 32.035(b), is "to encourage participation by and collaboration among districts, regional education service centers, the private sector, state and federal agencies, non-profit organizations, and institutions of higher education."		
THE TRI-STATE MULTIMEDIA LEP PROJECT	The California Department of Education, the Florida Department of Education, and the Texas Education Agency have joined together to develop a multimedia, curriculum-based learning package for the Limited-English-Proficient (LEP) student population.	*Vital Links* is an innovative, multimedia US History program that is available to all school districts. It is designed for use by middle grade students, teachers, and parents and is particularly appropriate for LEP student populations. *Vital Links* is based on a constructivist approach to history. At its core are a series of investigative questions that students explore in order to gain in-depth understanding of the key concepts important in our nation's development while developing their English language skills.	The components of the program include: videodiscs, videotapes, audio tapes, print materials, CD-ROM software, software tools for Macintosh and MS-DOS Windows, and telecommunications access. Six units were created and are available on two platforms at a discounted price to schools.	$200,000 (FY '94) $200,000 (FY '95) $0 (FY '96)

Current Status of the Long-Range Plan for Technology

Authorized Under Texas Education Code, Chapter 32

Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.035 - Demonstration Programs - CONTINUED TEXAS LIBRARY CONNECTION (TLC)	*INFORMATION SERVICES* TLC, created in 1994, provides current, relevant information by identifying the physical location of books and resources of school libraries and by making available the full-text of commercial online databases. TLC is accessible to all Texas students and staff from the Texas Education Agency's website. Approximately 600 school districts representing over 3,000 campuses have merged their holdings into over 2 million unique records and 17 million items. The participating districts have access to interlibrary loan and cataloging modules in addition to the public access catalog.	The purpose of TLC is to insure equal access to current, relevant information to all citizens of its school communities, regardless of geographic location or district size. TLC provides an integrated, statewide resource-sharing system through which needed information resources are identified, accessed and retrieved. TLC facilitates library technical services; provides appropriate full-text databases; enhances the ability of participating libraries to contribute to, and to participate in, local, state, and national resource-sharing initiatives, including TexShare and Project Link.	A district that has a direct connection to the Internet and local area networks that allow access by multiple students simultaneously is best prepared to use TLC.	$1,300,000 (FY '94) Carry-over (FY '95) $1,080,000 (FY '96) $650,000 (FY '97) $1,800,000* (FY '98) $1,500,000 (FY '99) * Includes $500,000 from School Improvement Initiative funds.

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.035 - Demonstration Programs - CONTINUED PROJECTS FOR EDUCATIONAL TECHNOLOGY (PETs)	*INFORMATION SERVICES* HB 183 and HB 1029 authorized TEA to establish one or more pilot, model, or demonstration projects to test the effectiveness of educational technologies not currently in general use in Texas schools. FY '94 - Planning grants FY '95 - Implementation grants FY '96 - Planning and implementation grants FY '96 - Effective technology staff development models FY '98 - Evaluation of Projects for Educational Technology. FY '99 - Pilot programs to investigate best practices. Planning and implementation grants have been awarded to 48 districts and collaboratives that impact 133 districts, most ESC regions, as well as higher education institutions and private sector entities.	The purpose of PETs is to provide equal access for students, teachers and administrators throughout the state to high-quality teaching and management tools. Planning grants provide districts and campuses with resources to conduct proper and efficient planning. Grant applications should be collaborative in nature with the private sector, ESCs, state and federal agencies, junior colleges, institutions of higher education or other post-secondary institutions; and promise to promote systemic change in the educational environment. Implementation grants promote systemic change in the educational environment and the learning process through innovative use of technology.	Technologies not currently in general use in Texas schools. Results of demonstration programs are disseminated through a variety of technologies including online, videoconferencing, satellite, CD-ROM, and video tape.	$100,000 (FY '94) $1,000,000 (FY '95) $1,570,000 (FY '96) $500,000 (FY '97) $150,000 (FY '98) $500,000 (FY '99)

Current Status of the Long-Range Plan for Technology

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Initiatives	Description	Purpose	Hardware	Funding Level
COMMISSIONER'S PUBLIC ACCESS INITIATIVE TEC 32.036 - Preview Centers and Training Programs TECHNOLOGY PREVIEW CENTERS AND TRAINING PROGRAMS	*INFORMATION SERVICES* Technology Preview Centers and Training Programs are located at regional education service centers to include equipment, software and courseware, and funded staff to provide inservice and technical assistance to districts on technology planning, products, services, and to demonstrate effective uses of technology. Funding was increased in FY '97 due to the high demand for technology planning and staff development through ESCs.	Technology Preview Centers and Training Programs serve as effective resources designed to increase the level of technology expertise in school districts. They offer district personnel hands-on experience with exemplary instructional systems, hardware, software, courseware, and other services. In addition, Technology Preview Centers and Training Programs staff provide continual assistance to districts in planning for the effective use and integration of technology into teaching and learning and daily operations, and the implementation of district technology plans and *The Long-Range Plan for Technology, 1996-2010.*	Networked and stand-alone computers, CD-ROM and laser disc players, modems, LCD panels, telecommunications and videoconferencing equipment, other related peripherals, instructional software, and emerging technologies.	$6,000,000 (FY '93) $6,000,000 (FY '94) $6,000,000 (FY '95) $6,000,000 (FY '96) $8,000,000 (FY '97) $8,000,000 (FY '98) $8,000,000 (FY '99)

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Compliance Statement

TITLE VI, CIVIL RIGHTS ACT OF 1964; THE MODIFIED COURT ORDER, CIVIL ACTION 5281, FEDERAL DISTRICT COURT, EASTERN DISTRICT OF TEXAS, TYLER DIVISION

Reviews of local education agencies pertaining to compliance with Title VI Civil Rights Act of 1964 and with specific requirements of the Modified Court Order, Civil Action No. 5281, Federal District Court, Eastern District of Texas, Tyler Division are conducted periodically by staff representatives of the Texas Education Agency. These reviews cover at least the following policies and practices:

(1) acceptance policies on student transfers from other school districts;

(2) operation of school bus routes or runs on a nonsegregated basis;

(3) nondiscrimination in extracurricular activities and the use of school facilities;

(4) nondiscriminatory practices in the hiring, assigning, promoting, paying, demoting, reassigning, or dismissing of faculty and staff members who work with children;

(5) enrollment and assignment of students without discrimination on the basis of race, color, or national origin;

(6) nondiscriminatory practices relating to the use of a student's first language; and

(7) evidence of published procedures for hearing complaints and grievances.

In addition to conducting reviews, the Texas Education Agency staff representatives check complaints of discrimination made by a citizen or citizens residing in a school district where it is alleged discriminatory practices have occurred or are occurring.

Where a violation of Title VI of the Civil Rights Act is found, the findings are reported to the Office for Civil Rights, U.S. Department of Education.

If there is a direct violation of the Court Order in Civil Action No. 5281 that cannot be cleared through negotiation, the sanctions required by the Court Order are applied.

TITLE VII, CIVIL RIGHTS ACT OF 1964 AS AMENDED BY THE EQUAL EMPLOYMENT OPPORTUNITY ACT OF 1972; EXECUTIVE ORDERS 11246 AND 11375; EQUAL PAY ACT OF 1964; TITLE IX, EDUCATION AMENDMENTS; REHABILITATION ACT OF 1973 AS AMENDED; 1974 AMENDMENTS TO THE WAGE-HOUR LAW EXPANDING THE AGE DISCRIMINATION IN EMPLOYMENT ACT OF 1967; VIETNAM ERA VETERANS READJUSTMENT ASSISTANCE ACT OF 1972 AS AMENDED; IMMIGRATION REFORM AND CONTROL ACT OF 1986; AMERICANS WITH DISABILITIES ACT OF 1990; AND THE CIVIL RIGHTS ACT OF 1991.

The Texas Education Agency shall comply fully with the nondiscrimination provisions of all federal and state laws, rules, and regulations by assuring that no person shall be excluded from consideration for recruitment, selection, appointment, training, promotion, retention, or any other personnel action, or be denied any benefits or participation in any educational programs or activities which it operates on the grounds of race, religion, color, national origin, sex, disability, age, or veteran status (except where age, sex, or disability constitutes a bona fide occupational qualification necessary to proper and efficient administration). The Texas Education Agency is an Equal Employment Opportunity/Affirmative Action employer.

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